

FURTHER COPPER HOARDS FROM THE GANGETIC BASIN AND A REVIEW OF THE PROBLEM

By B. B. LAL

The hoards of copper implements discovered in the Gangetic valley from time to time have remained somewhat enigmatic till now, as it has not yet been possible definitely to affiliate them to any one of the known cultures. In this article the Superintendent of the Excavations Branch, besides bringing to notice some implements unrecorded so far, draws attention to a class of pottery which is found associated with the implements and discusses its implication on the authorship of the copper hoards.

1. INTRODUCTORY

MUCH water has flown down the Ganges since Vincent Smith published in 1905 a comprehensive survey of the 'copper hoards' discovered from time to time (the first one going back to 1822) in Uttar Pradesh, Bihar, West Bengal and Madhya Pradesh.¹ He supplemented this survey in 1907 by bringing to light some more material from Biṭhūr and Pariar, both situated in the first-named State.² In 1915, Hiranand Shastri published some more implements, including an antennae sword, from Biṭhūr and also some from Bulandshahar and Hardoi Districts of the same State.³ The same year Coggin Brown brought to light several implements from the Rānchi District of Bihar.⁴ In the following year, 1916, A. Campbell and S. C. Roy recorded a large number of axes and bar-celts from Mānbhūm and Pālāmau Districts of the same State.⁵ To these were added in the same year three double-edged axes from Mayūrbhanj (Orissa) through the efforts of Cobden Ramsay, the then Political Agent of the area.⁶ Since then not many copper hoards seem to have been recorded save for the three antennae swords and a couple of flat celts from Kallūr in Hyderabad.⁷ In recent years, however, the study of these objects has gained a fresh momentum, and Professors Stuart Piggott⁸ and R. Heine-Geldern⁹ have put them on an 'international footing' by citing parallels from beyond the frontiers of India—Hissar and Anau in Persia and Caucasia in south Russia.

¹ Vincent A. Smith, 'The Copper Age and prehistoric bronze implements of India', *Indian Antiquary*, XXXIV (1905), pp. 229-44.

² Vincent A. Smith, 'The Copper Age and prehistoric implements of India—supplement', *Indian Antiquary*, XXXVI (1907), pp. 53-55.

³ H. Shastri, 'Recent additions to our knowledge of the Copper Age antiquities of the Indian Empire', *Journ. Asiatic Soc. Bengal*, New Series, XI (1915), pp. 1-16.

⁴ J. Coggin Brown in *Journ. Bihar and Orissa Res. Soc.*, I (1915) pp. 127-28.

⁵ A. Campbell in *Journ. Bihar and Orissa Res. Soc.*, II (1916), pp. 85-86; S. C. Roy in *ibid.*, pp. 482-83.

⁶ *Ibid.*, pp. 386-87.

⁷ *Annual Rep. Arch. Deptt. H.E.H. the Nizam's Dominions for 1937-40* (Calcutta 1942), pp. 22-24.

⁸ Stuart Piggott, 'Prehistoric copper hoards in the Ganges basin', *Antiquity*, no. 72 (1944), pp. 173-182.

⁹ R. Heine-Geldern, 'Archaeological traces of the Vedic Aryans', *Journ. Indian Soc. of Oriental Art*, IV (1936), pp. 87-113, and 'New light on the Aryan migration to India', *Bulletin American Institute for Iranian Art and Archaeology*, V (June 1937), pp. 7-16.

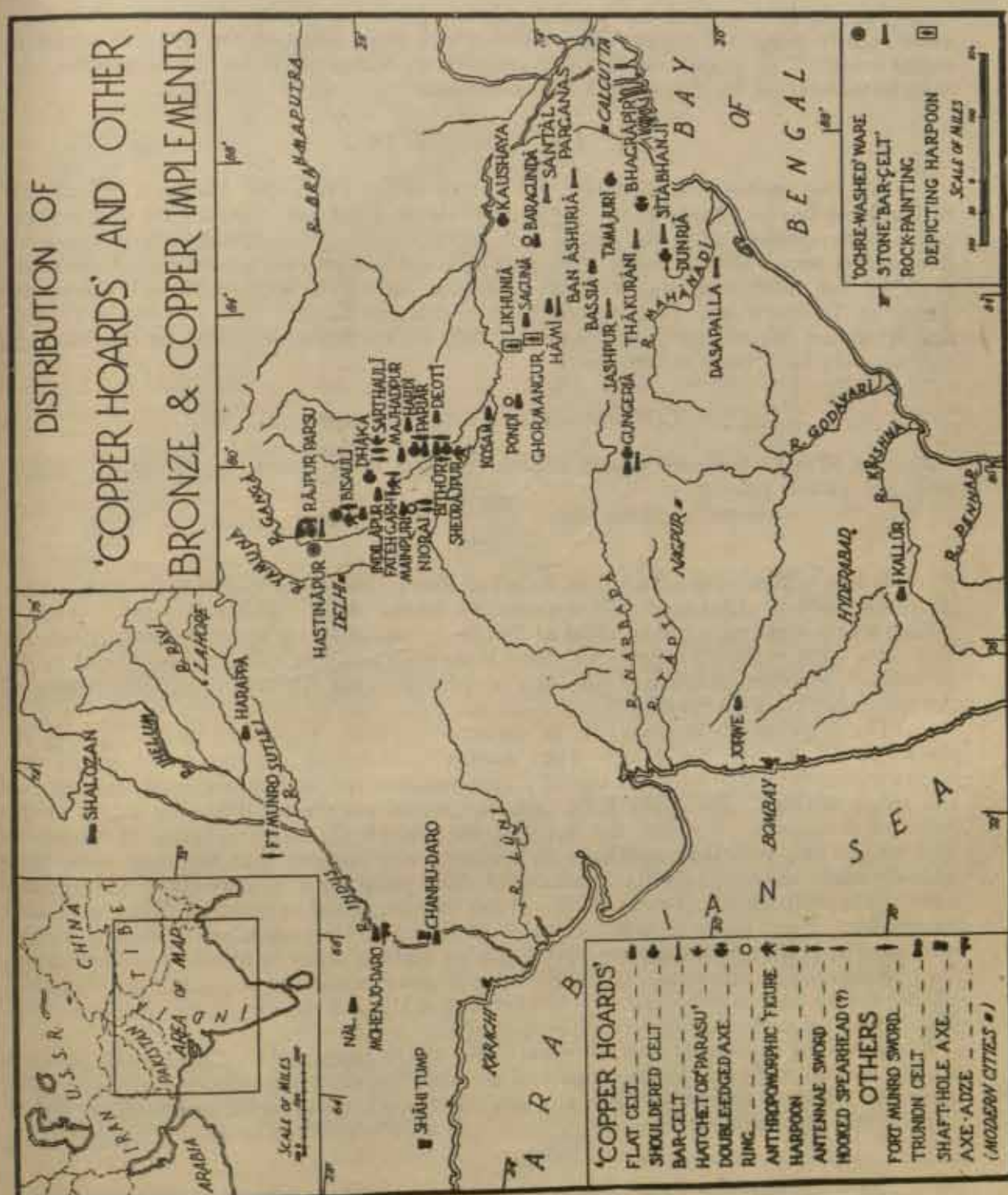


FIG. 1

The object in writing the present paper is primarily to place before scholars some more (nearly thirtyfive) copper implements which have come to the author's notice in recent years. This would also form an occasion to discuss afresh, as far as possible, the theories enunciated by Piggott and Heine-Geldern.

2. FRESH MATERIAL

The implements described here are lodged in the Municipal Museum, Allahabad, Bhārat Kalā Bhavan, Banaras, and the State Museum, Lucknow. During his visit to these places in September, 1950, the author took an opportunity of examining whatever copper implements were kindly brought to his notice by the authorities concerned.¹ The collections in the Allahabad and Banaras Museums have not been published previously. Those at Lucknow had been recorded up-to-date by Vincent Smith (1905 and 1907) and Hiranand Shastri (1915), and therefore only the specimens acquired by the Museum subsequently have been noticed here.

THE MUNICIPAL MUSEUM, ALLAHABAD

The Museum contains copper implements from three places : (i) Pondī, (ii) Bithūr and (iii) Bisaulī (cf. fig. 1).

Pondī

It is a village in the Teonthar Tehsil of Rewā District in Vindhya Pradesh, about 40 miles south of Allahabad and approached by the Allahabad-Rewā road. While a village school was under construction at Pondī, the workmen hit upon fortyseven rings and five celts, apparently of copper. Of these, three rings and one celt were presented to the Municipal Museum, Allahabad, in 1949 by Maulvi Ayaz Ali Khan, Superintendent of Archaeology, Vindhya Pradesh.

The rings vary from 4 to 4½ in. in diameter and have a circular section, ⅜ to ⅝ in. thick (pl. VI B, 1-2; fig. 2, 2). They have a 'mouth' or opening, which shows that pieces of required size were cut out of a long metallic rod and subsequently turned into the shape of rings. Had they been cast, one would not expect trimming marks at the edges of the mouth. Further, the fact that the over-all diameter, thickness of the section and weight etc. vary from specimen to specimen also suggests that the rings were individually made and not cast out of a set mould. This point has to be borne in mind while discussing the probable use of these rings. It has been suggested by some that they were used as weights. Now, unless several specimens are found to have an almost identical weight and various groups fit themselves into a graded scheme, there is hardly any justification for making such an assumption. The three specimens examined by the author at Allahabad do not favour such a view. However, a detailed analysis of the fortyseven specimens from Pondī may be useful in answering the question.

According to another view, they were used as 'ring-money'.² Obviously, not much can be said on this point in the absence of any concrete evidence. Since the rings do not have any standard weight nor bear any symbol or mark of authority, one wonders if they can be taken as 'money'.

¹ See 'Acknowledgements', below, p. 37.

² Smith, *op. cit.* (1905), p. 238.

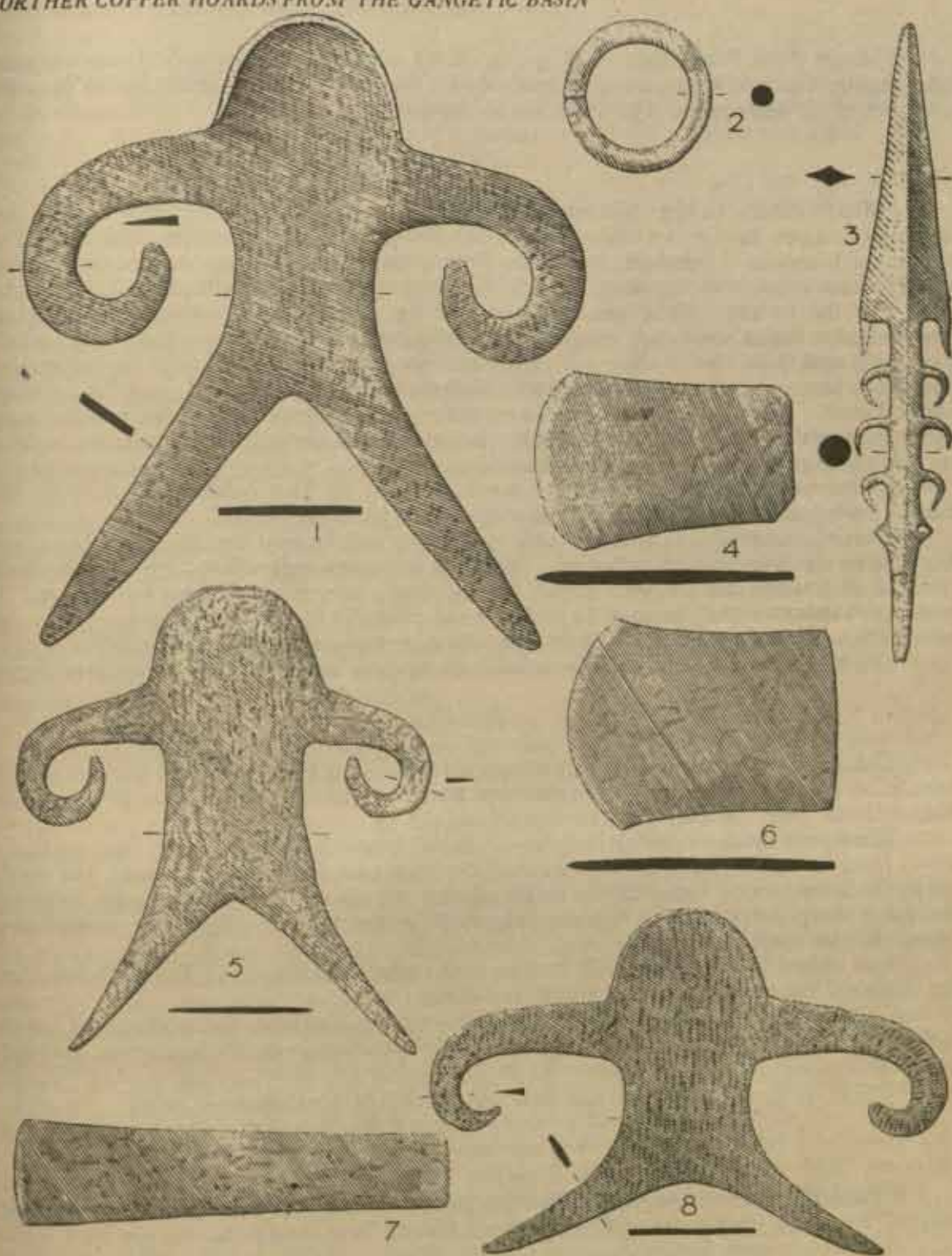


FIG. 2. Copper implements and other objects: 1, 3, 5, 7 and 8, from Bisauli; 2 and 6, from Pondi; and 4, from Hardi. $\frac{1}{2}$

The celt from Pondi (pl. VI B, 3; fig. 2, 6) is of the 'flat' type.¹ It has a square butt, slightly concave sides and a splayed-out cutting-edge. It is 7 in. long, $5\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. thick and weighs 170 *tolās* (nearly $4\frac{1}{2}$ lbs.).

Bithūr

Bithūr, situated on the southern bank of the Ganges, 12 miles north-west of Kanpur, has already been known for the occurrence of copper implements (cf. above). The Municipal Museum, Allahabad, purchased from a dealer in 1942 nine copper implements stated to have come from this site. They fall in two groups: (i) flat celts and (ii) shouldered celts. To the former belong nos. 1-4 and 9 of fig. 3. No. 1 has a square butt, slightly concave sides and a somewhat splayed out working-edge. It is over $5\frac{1}{2}$ in. long, nearly 4 in. wide and $\frac{1}{2}$ in. thick. No. 2 is comparatively longer. No. 3 has a thicker section (nearly $\frac{5}{8}$ in.) and appears to have remained unfinished, or, if finished, it is badly worn out and bent. No. 4 is a normal specimen of the type, while no. 9 is stumpy, being only $3\frac{1}{2}$ in. long against a width of 3 in. No. 7 is rather unusual, with its rectangular outline. Its cutting-edge too is not well-pronounced.

In contrast to these flat axes there is one, fig. 3, 5, of the shouldered type. In this case a clear 'shoulder' is formed where the blade joins the sides.

From the map (fig. 1) and the table (p. 38 A) it will be seen that the shouldered type has a more south-easterly distribution. Whether it has any connection with the 'Burmese type' of shouldered celt in stone cannot be said in the present state of our knowledge. It is also probable that the type may have developed from the flat celt (e.g. fig. 3, 4), through intermediary examples having a well splayed-out cutting-edge (e.g. fig. 3, 11).

The two celts not illustrated here belong one each to the flat and shouldered types.

Bisauli

The Museum contains one 'anthropomorphic' figure from Bisauli (fig. 2, 5). It belongs to a group of five objects recovered from the site, the other four being at the Bhārat Kalā Bhavan, Banaras (cf. below, p. 25).

The figure measures about $12\frac{1}{2}$ in. in length from 'head' to 'foot', and 11 in. in width from 'arm' to 'arm'. It seems to have been cast and then hammered, the marks left in the latter process being clearly visible all over the body. Both the arms are incurved, and have sharp outer edges. Any use suggested for this figure—religious or utilitarian—cannot but be conjectural.

This object was sent to Dr. B. B. Lal, Archaeological Chemist in India, Dehra Dun, for chemical examination. He reports as follows:—

'A qualitative analysis of the borings from this object shows the presence of copper and nickel only. No other metal is present. The quantitative analysis gave the following results:

Copper	...	98.77	per cent
Nickel	...	0.66	per cent
<hr/>			
Total	...	99.43	per cent

'The small amount of nickel detected in the specimen represents only an impurity derived from the copper-ore. The fact is significant, as it shows that the ore from which

¹ Nomenclature after S. Pigott in *Antiquity*, no. 72 (1944), p. 174.

the metal was smelted was of Indian origin. The Indian copper-ores have generally arsenic or nickel or both as impurities, and these are considered the key-elements in placing the source of the raw material. The nearest copper-mines and ancient copper-workings exist in Rajputana and Singhbhum, and it is probable that the specimens in question may have been derived from ores from such a source.¹

The fact that this object is made of copper and not bronze—and the same applies to most of the other objects as well—seems to play an important part in ascertaining the cultural affiliations of these copper hoards (cf. below, p. 37).

THE BHĀRAT KALĀ BHAVAN, BANARAS

In this Museum are lodged four copper objects from Bisauli, a Tehsil headquarters in the Badaun District of Uttar Pradesh. As in the case of several other copper hoards, here too the discovery was accidental. While tilling his field, a farmer named Angan struck upon five copper objects at a depth of hardly a foot below the surface. He reported the matter to the local authorities, and finally Mr. Braj Bhushan Saran Jetley, then Superintendent of Police of the District, presented them to the Bhārat Kalā Bhavan in 1936-37.

Of the four objects, two are 'anthropomorphic' figures and the rest a harpoon and a celt each. Of the anthropomorphic figures, one is tall, while the other is dwarfish. The former specimen is nearly 17 in. long and has a very prominent ridge outlining the 'head' (pl. VI A; fig. 2, 1). In the case of the latter the length is only 9 in. against a width of 13½ in. (pl. V, 1; fig. 2, 8). In both the figures—in fact in all the examples of the type—the curved portion of the arms is thinner than the rest of the body and the outer edges are invariably sharp, which facts suggest that this part of the figure had been expanded by beating. Such an impression is supported by the 'hammer-marks' which follow the curvature of the arm in a radial fashion.

The harpoon, nearly 17 in. in length, is a fine example of the type (pl. V, 2; fig. 2, 3). It has a strong medial rib and a long tapering blade. The middle part has three pairs of finely-pointed incurved barbs of cylindrical section. At the junction of the barbed portion and the tang there is a pair of knobs of which one is perforated. The perforation or 'eye' was evidently used for passing a cord through in the process of tying the harpoon on to its shaft. The implement was no doubt cast, although there may have been some subsequent hammering at the blade-end.

The celt is rather longish, having a length of 11½ in. against a maximum width of 2½ in. (pl. V, 3; fig. 2, 7). In section too it is unusually thin, only ½ in.

In October 1949 the author visited Bisauli with a view to examining the site. Through the help of the local authorities he was able to contact Angan, who took him to the place where the objects had been ploughed up. The spot lies on the south-eastern outskirts of the town in the Zamindari of Kishori Lal.¹ There is a tomb to the west of the field and a pond each to its north-east and south-east. Surprising though it may appear, the area is almost flat without any signs of a mound. Still, the author thought it worthwhile to dig a little bit, and accordingly two trenches were laid out, one, called A, very close to the find-spot, and another, B, nearly a hundred yards to the south.

Trench A, 14 ft. long and 8 ft. wide, was carried to a depth of about 3 ft. below the ground-level. Whatever little pottery was obtained came from the top first foot. In trench B, 13 ft. by 7 ft., no sherd was encountered lower than 2½ ft. from the surface.

¹ Information regarding the ownership of the land was obtained from the local revenue officials.

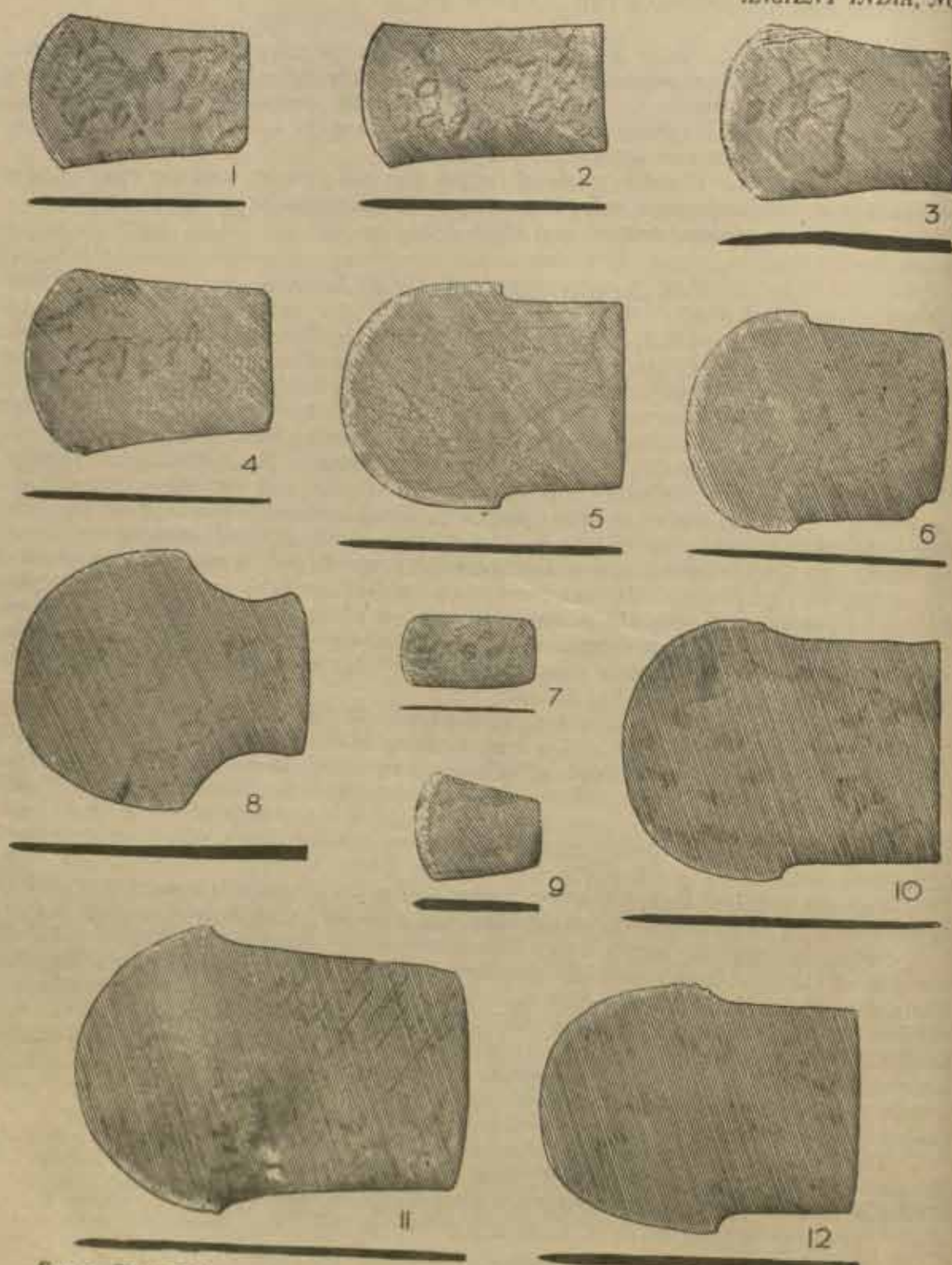


FIG. 3. Copper implements: 1-5, 7 and 9, from Bīṭhūr; 6, 10 and 12, from Dhākā; 8, from Dunriā; and 11, from Indilāpur. $\frac{1}{4}$

FURTHER COPPER HOARDS FROM THE GANGETIC BASIN

The pottery from these trenches, though very limited in quantity, divides itself into two classes : (a) well-fired, red-slipped ware with designs executed in black colour and (b) ill-fired, thick, ochre-washed ware—mainly bits with worn-out edges. The two varieties were so much mixed up (obviously due to the ploughing up of the field through all these years) that it was difficult to stratify them. However, from the fact that the former type looked fresh and the latter worn out and rolled it is probable (not proved) that the latter was the older of the two.

The excavation did not yield any copper implement (may be that the area dug was not much), and therefore it is very difficult to say which of the two types of pottery mentioned above was associated with the hoard found previously at the site. But if at all any guess is to be hazarded, it is the thick, ochre-washed, rolled ware that would appear to claim contemporaneity with the copper implements. The guess seems to gain ground when viewed alongside similar evidence from another well-known copper-hoard site, Rājpur Parsu, in Bijnor District of Uttar Pradesh (cf. below, p. 37).

THE STATE MUSEUM, LUCKNOW

This Museum has by far the largest number of copper implements and, as stated above, most of them had already been published by Smith and Shastri. Here are described some more objects which have been added to the Museum since 1915.¹ They come from : Hardī, Dhākā, Sarthaulī, Sheorājpur, Indilāpur, Majhadpur and Deotī—all in Uttar Pradesh ; and Dunriā in Pāl Lahārā, Orissa.

Hardī

It is a village in Tehsil Sidhaurī, District Sitāpur, U.P. The Deputy Commissioner, Sitāpur, presented to the Museum in 1924 a celt from this site. The circumstances of the discovery and the exact find-spot are not recorded. The celt is of the flat type, with a square butt and splayed out cutting-edge (fig. 2, 4). It is 6½ in. long and 4½ in. wide and has a section nearly ½ in. thick. The truncations at the butt-end may perhaps be accidental.

Dhākā

In February 1917, the Museum acquired five celts from village Dhākā, Police Station Tilhar, District Shāhjahanpur, U.P. No other details are recorded.

All the celts belong to the shouldered variety and have a square butt (pl. VII A, 1-5 ; fig. 3, 12, 10 and 6).² Plate VII A, 1 (fig. 3, 12) has a length of 8½ in., out of which the blade portion accounts for nearly 5 in. In pl. VII A, 3 (fig. 3, 6) the position is just the reverse, the blade being only 3 in. out of a total length of 7 in. The relative length of the blade and the butt, however, is not of much consequence since the type remains fundamentally the same, there being a pronounced shoulder at the junction of the two

¹ In sorting out the post-1915 implements, Shri M. M. Nagar, Curator of the Museum, was of great help to me, for which I am particularly beholden to him. However, there are chances of an oversight, i.e., there may still be some objects in the Museum which, though acquired after 1915, are not recorded here or there may be others which have already been recorded in some obscure publications but are being re-noticed here.

² Nos. 4 and 5 of the photograph are not figured.

portions. The celts are well-made and sturdy. For example, fig. 3, 12 has a thickness of $\frac{1}{2}$ in. and weighs nearly 165 *tolās* (well over 4 lbs.).

Sarthaui

The Museum is in possession of seven implements from Sarthaui, Pargana Kant, District Shāhjahānpur, presented by the District Magistrate in June 1921. They include: five swords (?), a harpoon and a hatchet or *paraśu*-like object (pls. VIII and VII B; fig. 4, 1, 3, 5-8).

Pl. VIII, 1 (fig. 4, 5) is the smallest of these swords, being 12 $\frac{1}{4}$ in. long. It has a leaf-shaped blade with a stout mid-rib and a small (only 2 in. long), flat tang. In pl. VIII, 2 the blade is much broader, nearly 3 in. The tang, too, is relatively longer, accounting for one-fourth of the total length (15 $\frac{3}{4}$ in.) of the sword, and has a forked projection on one side. Pl. VIII, 3 (fig. 4, 1) is the longest of the lot, being 20 $\frac{1}{2}$ in. The medial rib produces a fine lozenge-shaped section of the blade. In pl. VIII, 4 (fig. 4, 3) the hook at the tang is broken, but one can clearly notice that it was obtained by forking the tang itself. The hook in pl. VIII, 5 (fig. 4, 7) is slightly curved.

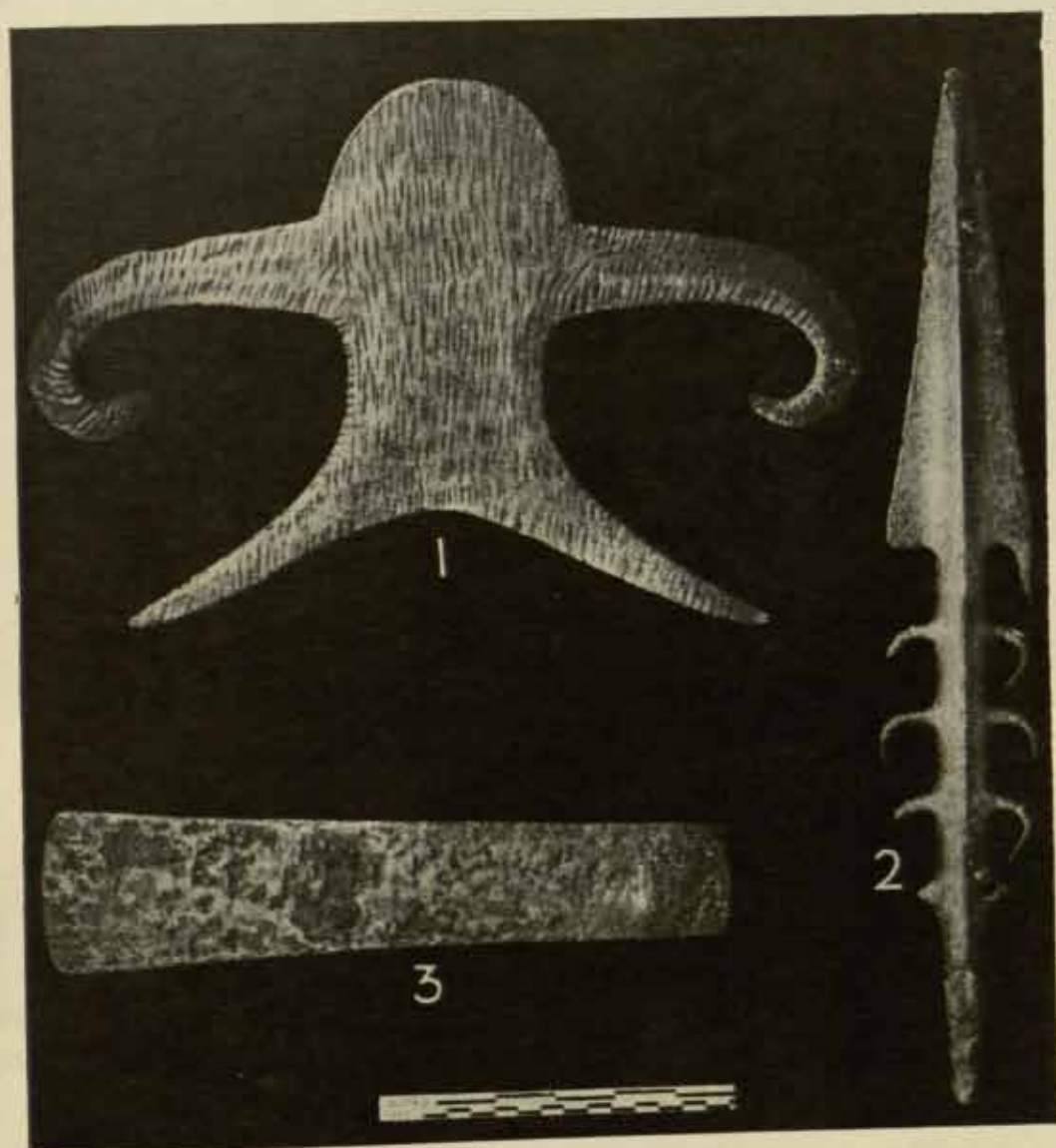
That these implements were used as swords cannot be said with certainty. Sir Walter Elliot Smith, while describing a similar implement in the National Museum of Antiquities, Edinburgh, used the term 'sword' and since then it has been vaguely followed. Vincent Smith, on the other hand, has opined: 'in spite of its length it should be called a spear-head. I possess a Somali spear-head, which is 2 $\frac{1}{2}$ ft. long without, and 3 $\frac{1}{4}$ ft. long with, the socket. The hook on the side of the tang seems to have been intended for fastening the blade to the shaft by a thong.'¹ One has only to look for parallels to be convinced of the argument. The harpoons, which were undoubtedly tied on to a shaft by means of a cord or thong, have two devices for the purpose. In one case there is a hole in one of the knobbed projections at the tang through which the cord was passed (pl. V, 2; fig. 2, 3). In another there is a forked projection or hook on one side of the tang around which the cord would be passed in order that the implement may be securely fastened to the shaft (pl. VII B, 2; fig. 4, 8). The so-called swords have the latter device (e.g. in pl. VIII, 2, 4 and 5; fig. 4, 7) and therefore, it is equally possible that they were used as spear-heads.

Though falling within the general category of harpoons, the Sarthaui specimen (pl. VII B, 2; fig. 4, 8) differs in technical details from the Bisauli example described above (pl. V, 2; fig. 2, 3); it would perhaps be worthwhile to call them sub-types A and B respectively. In the former case the blade is not a well-developed entity, being only 3 in. out of a length of over 11 in. for the harpoon, whereas in the latter it accounts for nearly half the total length. Again, the barbs in type A are flat, outward indentations (as in the bone prototypes of Magdalenian V and VI), while in type B they are incurved, and have a circular section which culminates in a fine point. It appears that while type B was cast as it is, type A was perhaps obtained by trimming a plain spear-head of the type illustrated in fig. 4, 5. Such an assumption is borne out by the trimming marks left on the outline of the barbs in type A (cf. pl. VII B, 2).³

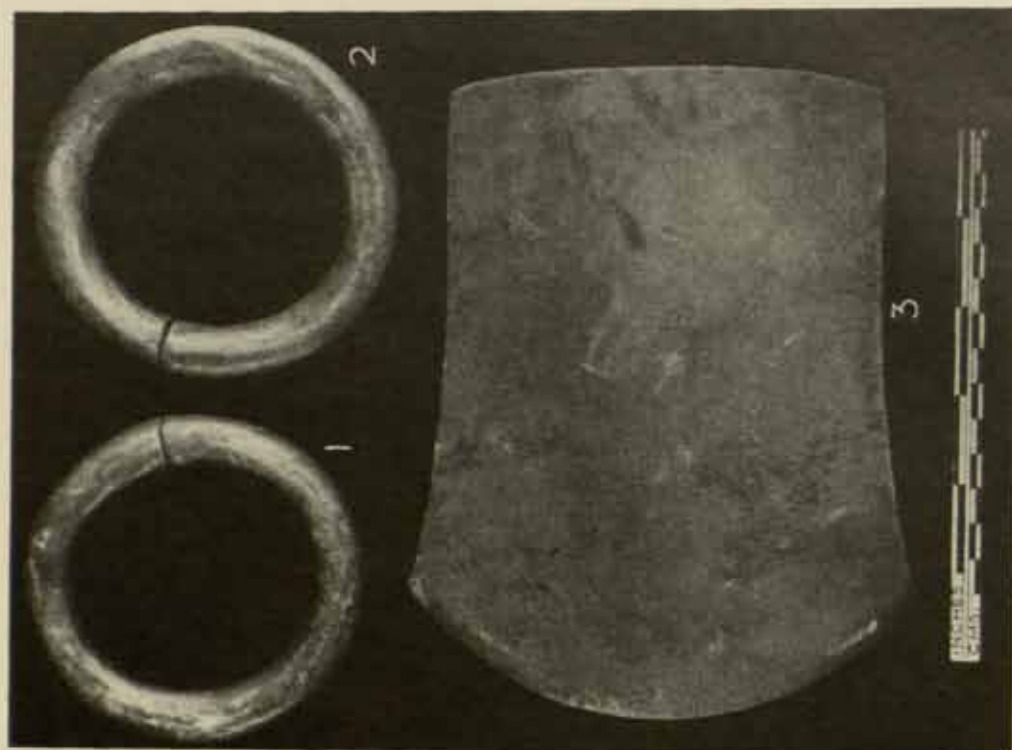
¹ *Proc. Soc. Ant. Scotland*, 1874, p. 691.

² V. Smith, *op. cit.* (1905), p. 241.

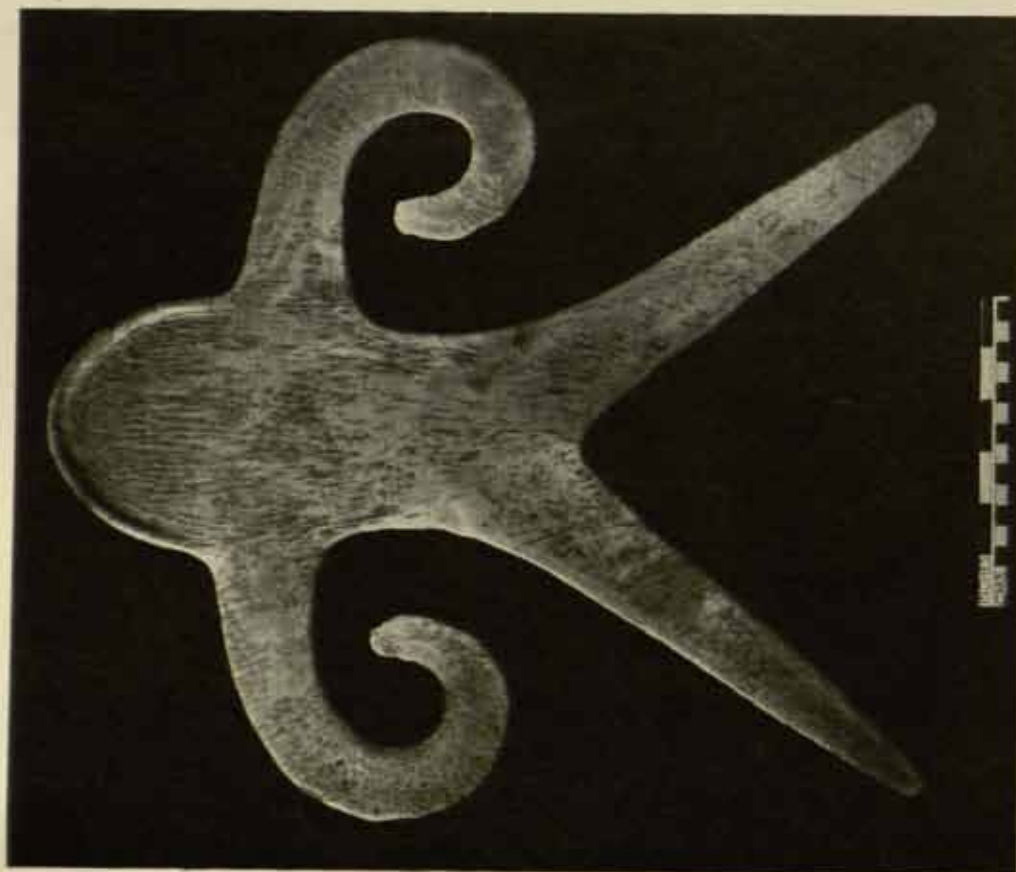
³ The harpoon illustrated by Hiranand Shastri in *Journ. Asiatic Soc. Bengal*, XI (1915), pl. III, 1 also confirms this view.



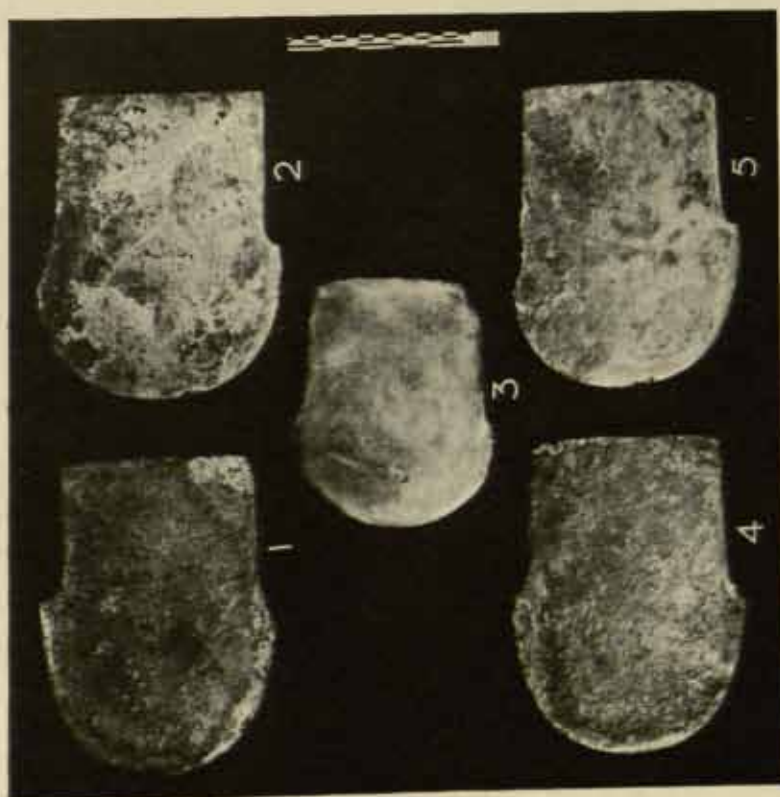
*Copper objects from Bisauli: 1, anthropomorphic figure; 2, harpoon (type B);
3, longish celt see (page 25)*



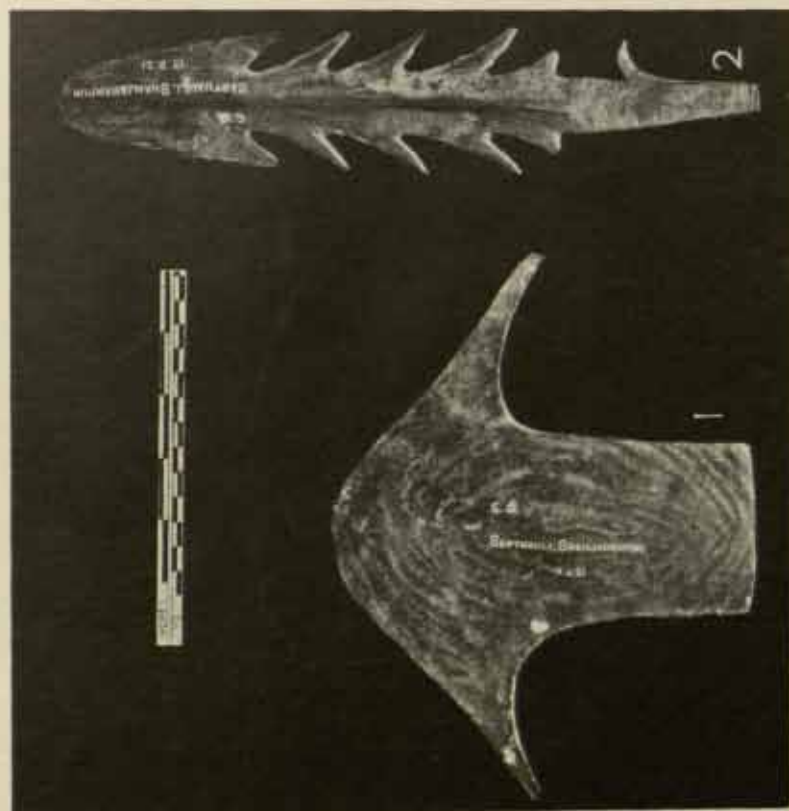
B. Copper objects from Pondi: 1 and 2, rings; 3, flat cell
(see pages 22, 24)



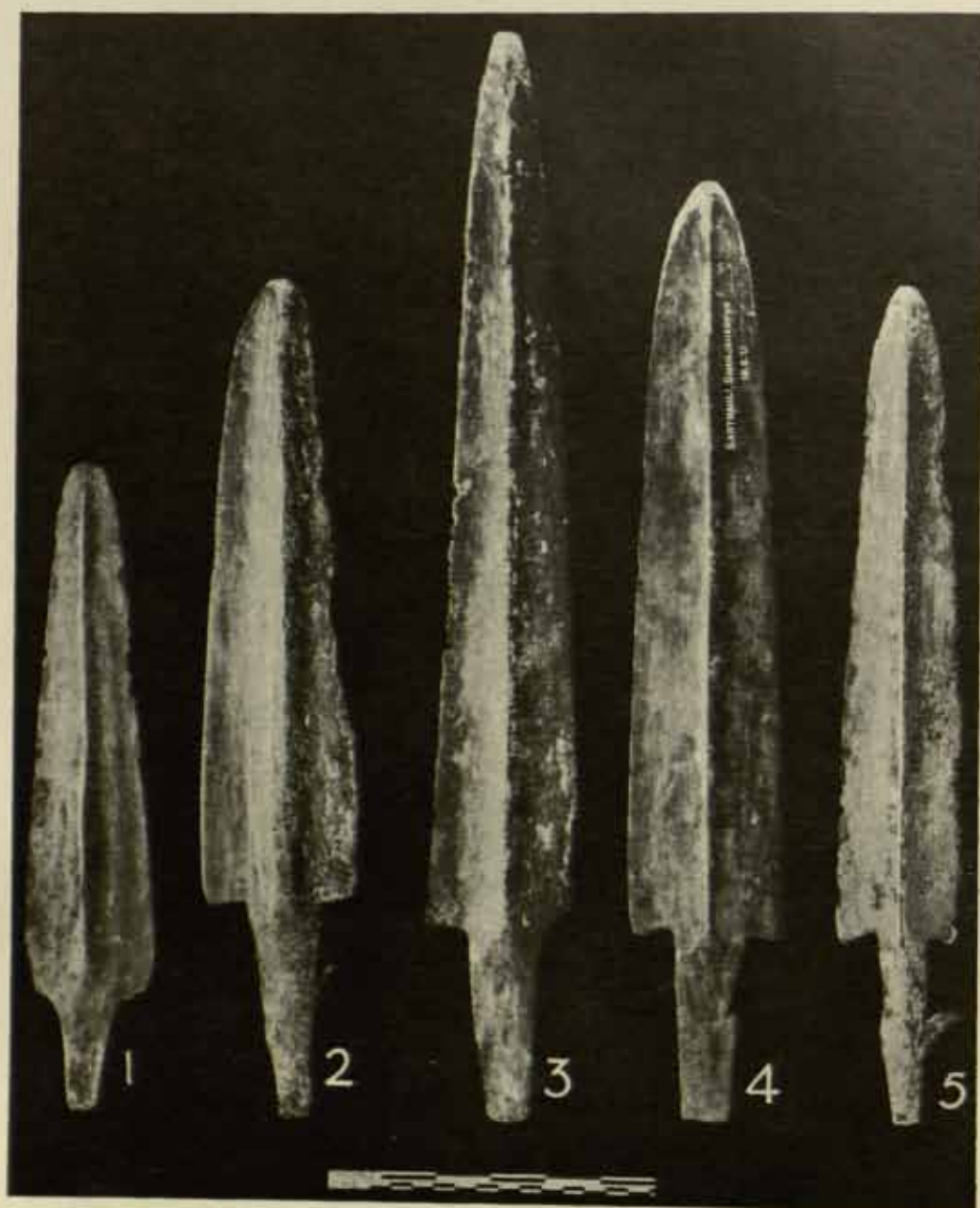
A. Anthropomorphic figure of copper from Bisauli
(see page 25)



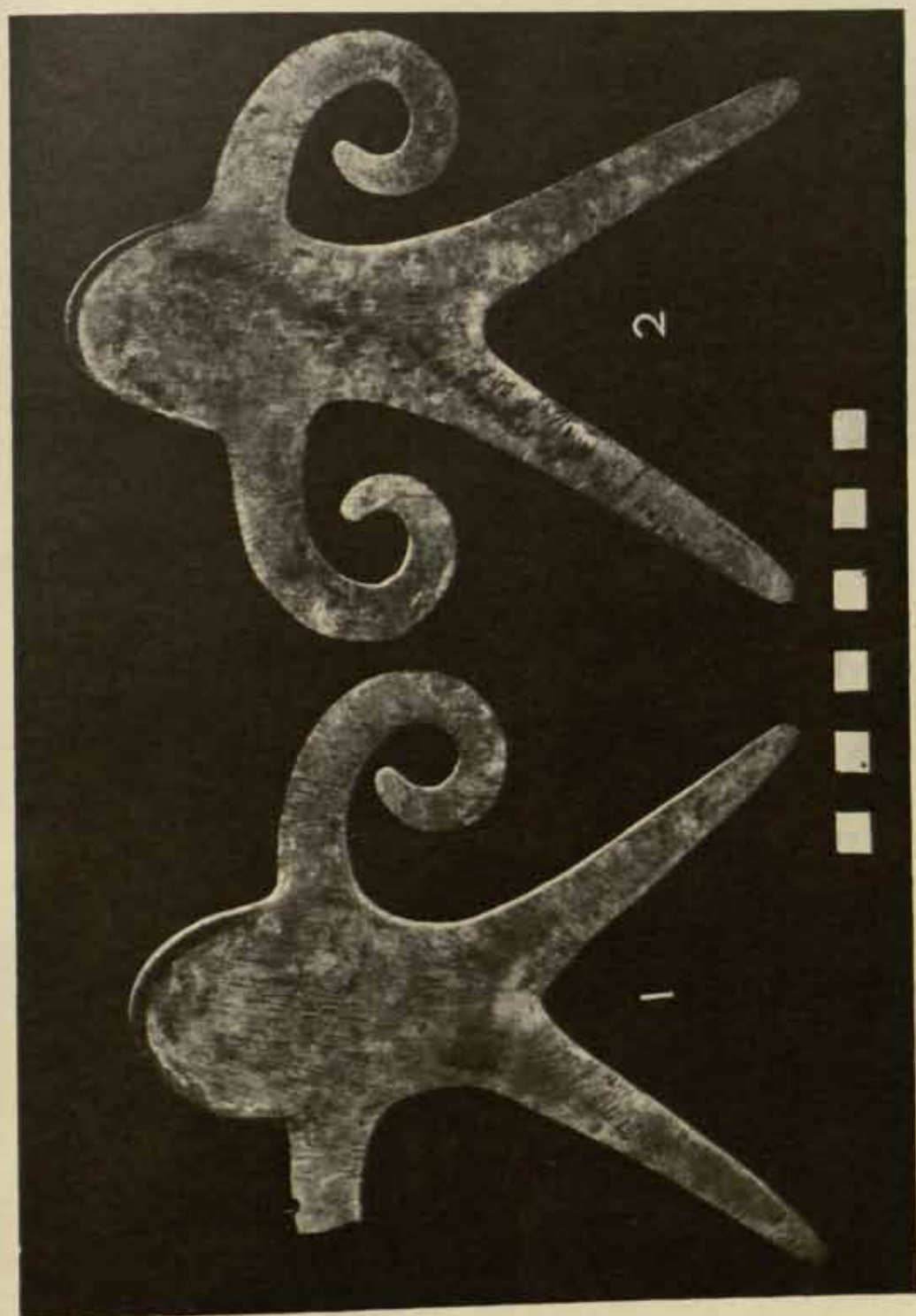
A. Copper celts from Dhākā, (see pages 27-28)



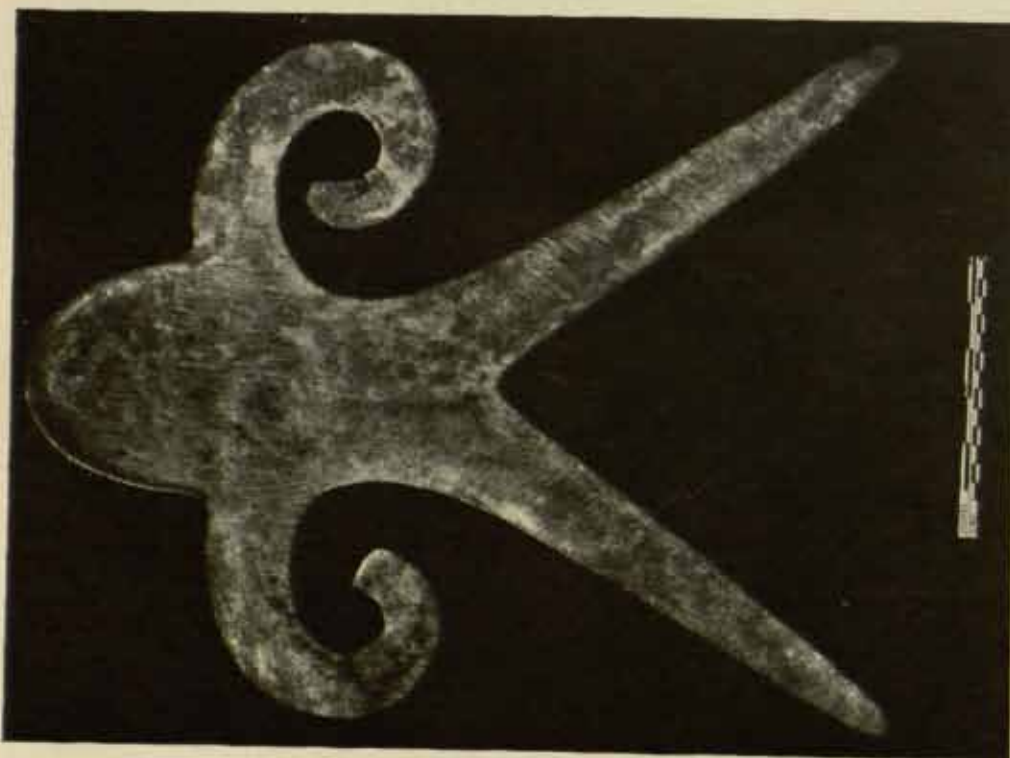
B. 1, Copper hatchet and 2, harpoon (type A), from Sarthauli
(see pages 28-29)



Copper swords or spear-heads from Sarthauli (see page 28)



Anthropomorphic figures of copper from Sheorūpur (see page 29)



A. Anthropomorphic figure of copper from Sheorāipur
(see page 29)



B. Shouldered celt of copper from
Dauriā (see page 29)



C. Copper celt from Indilāpur
(see page 29)

FURTHER COPPER HOARDS FROM THE GANGETIC BASIN

The hatchet or *paraśu*¹ has a rather unusual shape (pl. VII B, 1; fig. 4, 6). It measures $6\frac{3}{4}$ in. long and nearly 9 in. wide (including the out-stretched 'wings'). The cutting-edge is, however, not very sharp. On its surface are prominent hammer-marks, which incidentally form roughly concentric ovals. Though the implement was cast in the first instance, some trimming also appears to have been done to obtain the final outline of the wings.

Sheorājpur

There are three anthropomorphic figures in the Museum from Sheorājpur, District Kanpur, U.P. (pls. IX and X A). They are indeed massive. The one illustrated in pl. X A measures over 19 in. from head to foot and $12\frac{1}{2}$ in. across and has a well-pronounced ridge round the head. Pl. IX, 2 (fig. 4, 2) is nearly 18 in. long and 15 in. wide and weighs 402 *tolās* (well over 10 lbs.).² One of the arms of pl. IX, 1 is broken, but on restoration the figure would measure nearly $16\frac{1}{2}$ in. across.

Indilāpur

It is a village in P. O. Mundiā, District Shāhjānpur, U.P. The Museum acquired in November 1944 a celt from this site (pl. X C; fig. 3, 11). It is $10\frac{1}{4}$ in. long and has a well splayed-out cutting-edge, nearly $7\frac{1}{2}$ in. wide. The blade here begins to develop into a separate entity and thus from the point of view of shape the specimen occupies an intermediary position between the flat and shouldered types of celts (e.g. fig. 3, 4 and 10 respectively).

Majhadpur

In August 1915, the Museum acquired a celt from Majhadpur, P.S. Behtagokul, District Hardoi, U.P. It has a straight cutting-edge, tapering sides and rounded butt (fig. 4, 4).

Deotī

In the Museum is also lodged a fragmentary celt with straight cutting-edge and tapering sides. It was found during the excavation of an irrigation-canal near village Deotī, Tehsil Mohanlālganj, District Lucknow, U.P.

Dunriā

The Museum contains a celt from Dunriā in Pāl Lahārā, Orissa (pl. X B; fig. 3, 8). It is $7\frac{3}{4}$ in. long, $6\frac{3}{4}$ in. wide and nearly $\frac{3}{4}$ in. thick at the butt end. The cutting-edge, however, is not sharp. Though of the shouldered type, it differs from other specimens (e.g. fig. 3, 5) in respect of the concavity of the sides.

¹ Though the shape of this implement does not fully answer the description of a traditional Indian *paraśu*, I have retained the term for the sake of convenience.

² The weights mentioned in this paper were very kindly recorded by an assistant of the museum concerned.

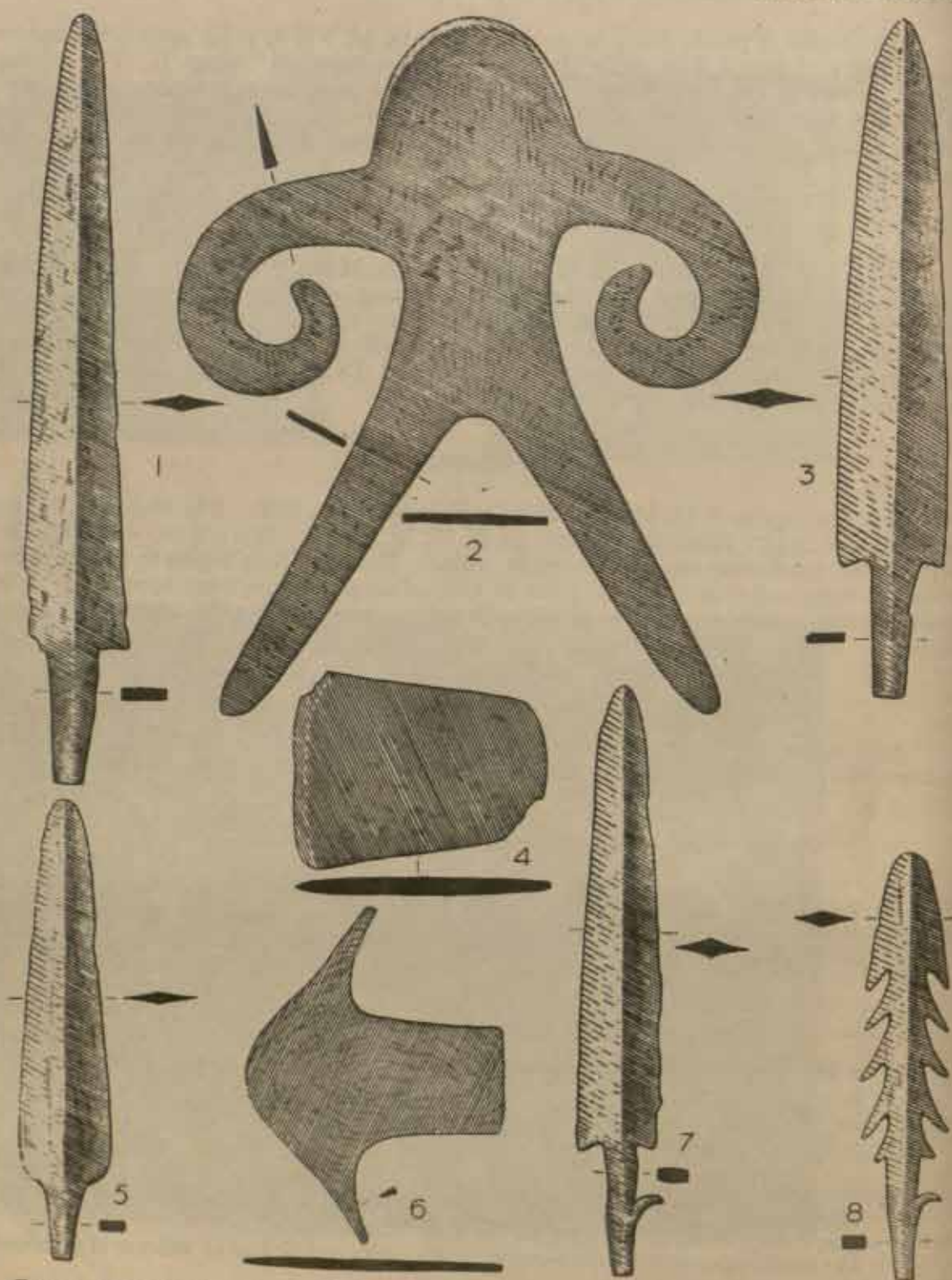


FIG. 4. Copper implements: 1, 3, 5-8, from Sarthault; 2, from Sheorājpur; and 4, from Majhadpur. 1

3. REVIEW OF THE PROBLEM

After this description of the copper implements and their find-spots, one is naturally anxious to know something about their authorship and chronological horizon. Earlier writers like Vincent Smith and Hiranand Shastri did not have much comparative material before them and could not, therefore, dwell on this aspect of the problem. In recent years, however, quite a lot has been said on the subject, specially by two eminent archaeologists, R. Heine-Geldern and Stuart Piggott.

'I beg to be allowed', writes the former, 'to assume for the time being as certainty the hypothesis, that the archaeological finds we discussed, are in fact traces of the Indo-Aryan migration. Now let us see which conclusions we are able to draw from this'.¹ He then concludes: 'Our research has proved with certainty that there must have been cultural intercourse of some kind between northern India on the one hand, and west Persia, Transcaucasia, the Northern Caucasus, and South Russia on the other, during the period from about 1200 to 1000 B.C., and that distinct traces of these connections are to be found in north Persia (Hissar IIIc, Tureng Tepe). Everything else, all interpretation of these finds as traces of a great ethnical migration, their connection with the Vedic Aryans is as yet only hypothetical, though this hypothesis has extremely strong reasons speaking in its favour. We shall only gain certainty by systematic field-work'.² Elsewhere he reiterates: 'If we could hope to find some archaeological traces of the Vedic Aryans it would be among these prehistoric copper and bronze objects from northern India'.³ According to him, therefore, it is the Vedic Aryans who produced these objects, somewhere between 1200 and 1000 B.C.

Professor Piggott too, writing in 1944, made a similar observation. 'If they are, as seems likely, intrusive to the area', he remarked, 'we can hardly avoid the temptation of relating them to some aspect of the Aryan immigration into India. In the search for material evidence of "Vedic" culture these swords, with their implication of warrior invaders, seem perhaps to be the likeliest claimants up to date'.⁴ Recently, however, the Professor has modified his views. 'It would be tempting to associate this movement', he observes, 'with something more than trade, and to see in it the colonization of the Ganges basin by refugees and displaced persons from the Punjab and the Indus valley during the time of the break-up of the Harappā empire and the coming of the raiders from the west. The deposition of hoards itself suggests a time of insecurity and economic instability, and may mean that the refugees were not left undisturbed for long, as the invasions gathered momentum and pressed on, beyond the old frontiers of the Harappā kingdom and down into the Ganges valley. But here we leave archaeology for the ambiguous hints of legend and tradition'.⁵ According to his latest views, therefore, the copper hoards are to be associated with Harappan refugees and not the Aryans.

In the face of these two stalwarts it is rather embarrassing to re-open the question. The author, therefore, craves their indulgence while placing his view-point before scholars.

Let it be stated at the outset that none of the implements noticed here (or for that matter none of those described by previous writers) has been found in a regular excavation. Nor is there any other evidence (with the exception of that from Bisaulī and Rājpur

¹ R. Heine-Geldern, *op. cit.* (1936), p. 106.

² *Ibid.*, p. 111.

³ R. Heine-Geldern, *op. cit.* (1937), p. 7.

⁴ Stuart Piggott, *op. cit.*, p. 180.

⁵ Stuart Piggott, *Prehistoric India* (1950), p. 238.

Parsu discussed in this paper) to ascertain the type of pottery or other objects associated with these hoards. In fact, in several cases it is difficult to locate the exact find-spot even. Thus, no direct or stratigraphical evidence can come to our help in identifying the culture of which these implements formed a constituent or in ascertaining their chronological horizon. Any inference at present, therefore, has necessarily to depend upon stylistic comparisons and other circumstantial evidence.

The 'copper-hoard' sites of the Gangetic basin have so far produced the following main types of implements: (i) flat celts, (ii) shouldered celts, (iii) bar-celts, (iv) rings, (v) harpoons, (vi) antennae swords and (vii) anthropomorphic figures. Let it now be examined which other sites in India or abroad have produced similar objects.

(i) *Flat celts*.—They occur at Harappā, and several other protohistoric sites of the Indus valley. Jorwe, 47 miles south-east of Nāl, Bombay State, has yielded four of them.¹ But the type is so simple that not much can be based on its occurrence.

(ii) *Shouldered celts*.—As already stated above (p. 24), shouldered celts have a south-easterly distribution, being in the main confined to eastern U.P., Bihar, Bengal and Orissa. No example has so far been found west of the Gangetic basin.

(iii) *Bar-celts*.—A bar-celt consists of a nearly parallel-sided bar, the length of which (sometimes up to 2 ft.) measures several times its width. It has a rectangular section, flat bottom and convex upper side (pl. XI B; fig. 5, 2). The cutting-edge, usually crescentic, is obtained by bevelling the upper side only. The writer has observed that most of these features also characterize the stone celts from the hilly tracts of southern Bihar, western West Bengal and northern Orissa (cf. pl. XI A; fig. 5, 1).² There is, therefore, good reason to believe that the copper bar-celts developed from their prototypes in stone in course of time when metal began to replace stone. It has been suggested by Professor Piggott that the bar-celts may have developed from the narrow elongated celts discovered at Chanhudaro and Nāl.³ But these latter specimens do not possess the characteristic features of a bar-celt. Besides, in view of the more positive evidence regarding the evolution of the copper bar-celts from their stone prototypes, as discussed above, the possibility of an Indus valley origin of this type of implement may have to be given up.

(iv) *Rings*.—They do not occur at the Indus valley sites. Smith (1905) refers to 'Irish gold ring-money and silver ring-money', but it is doubtful if the Gangetic specimens of copper have any connection with them.

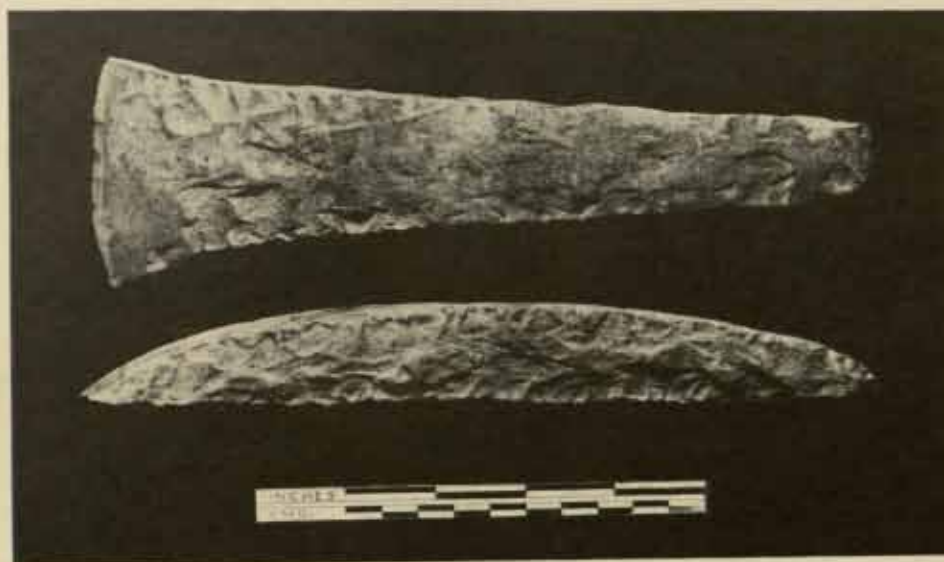
(v) *Harpoons*.—As stated above (p. 28), Magdalenian harpoons of bone have a shape similar to that of our type A (pl. VII B, 2; fig. 4, 8). But they are so much removed from the Indian specimens, both in point of time and place, that it is difficult to imagine any relationship between the two. Again, Heine-Geldern has drawn attention to some arrowheads with simple barbs from Transcaucasia, Talish and Luristan, which, he thinks, may have given rise to the Indian harpoons.⁴ This is too much to assume. Barbed arrowheads are known from several ancient sites in the world, but surely they are quite distinct from the harpoons, the shape and method of hafting of which are fundamentally different.

¹ Information from Professor H. D. Sankalia and Shri M. N. Deshpande.

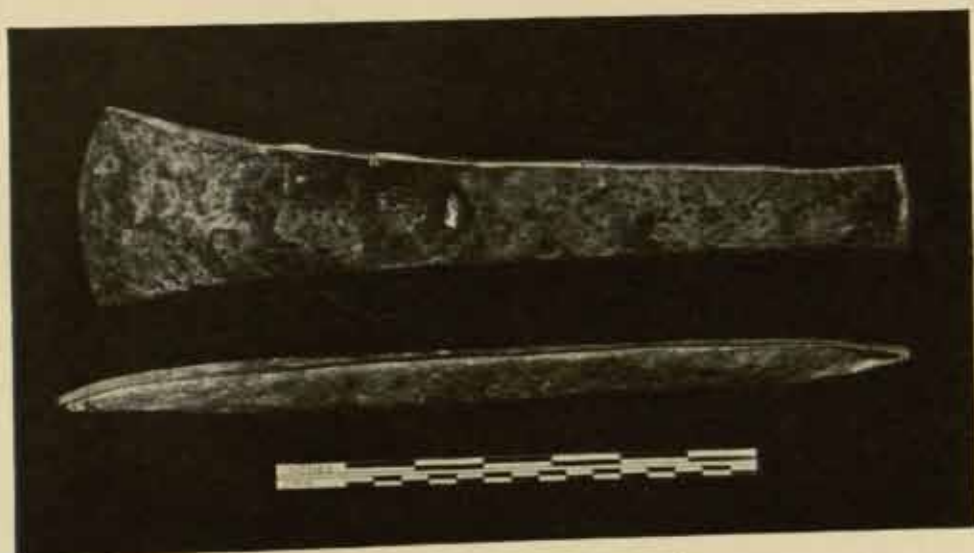
² The author hopes to publish shortly a detailed study on these interesting stone 'bar-celts'.

³ E. J. H. Mackay, *Chanhudaro Excavations* (Newhaven, Conn., 1943), pls. LXVIII and LXXI; for Nāl specimens, cf. H. Hargreaves, 'Excavations in Baluchistan, 1925', *Mem. Arch. Sur. Ind.* no. 35 (Delhi, 1929), pl. XIV a.

⁴ Heine-Geldern, *op. cit.* (1936), p. 102.



A. Stone 'bar-celt' from Ban Āshuriā
(see page 32)



B. Copper 'bar-celt' from Gungeriā
(see page 32)

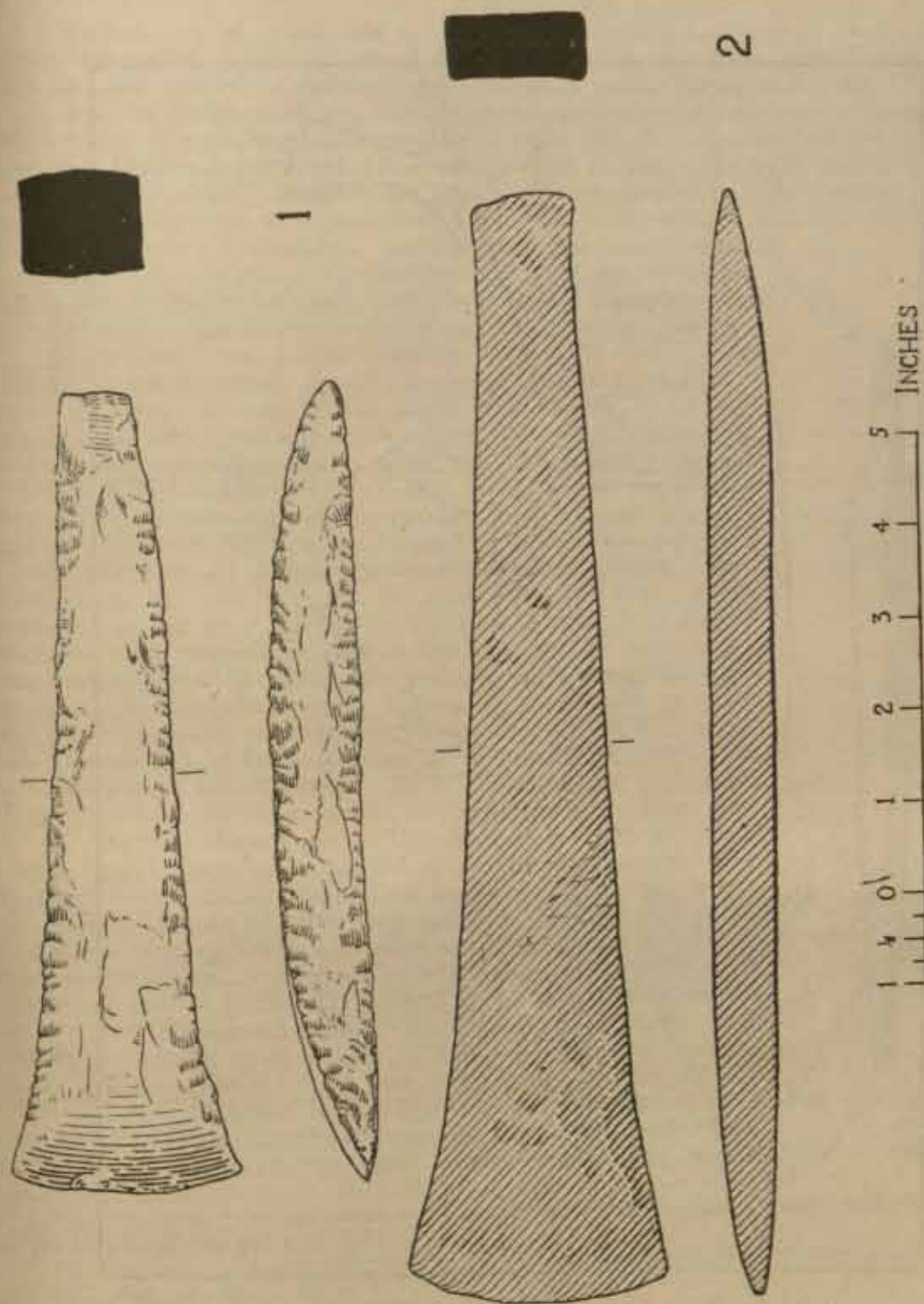


FIG. 5. 1, Stone 'bar-celt' from Ban Ashurā, Dt. Bānkurā, West Bengal; 2, copper 'bar-celt' from Gungeriā, Dt. Bālaghat, Madhya Pradesh.

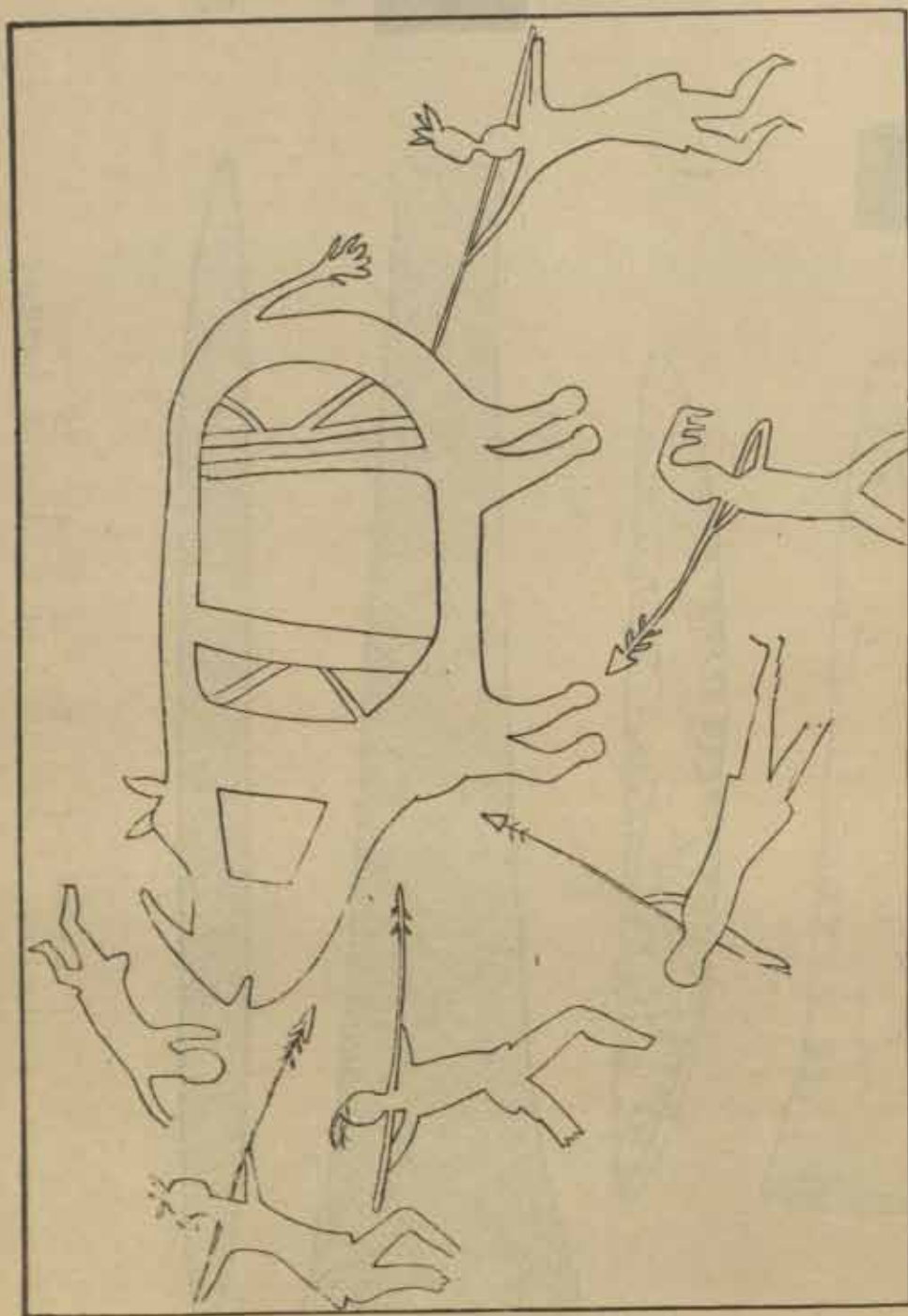


FIG. 6. *Rhinoceros-hunt, Ghormangur cave, Mirzāpur, U.P. (after Cockburn)*

But what may be worth reference here is that certain implements depicted in the archaic cave-paintings of the Central Indian plateau bear a close resemblance to the harpoons. For example, a cave called Ghormangur in the Mirzāpur District, U.P., contains a scene of rhinoceros-hunt, wherein six persons, attacking the animal from various sides, are armed with long, harpoon-headed poles (fig. 6).¹ In another cave, Likhuniā, in the same District, is portrayed a man who is about to thrust a multiple-barbed spear into the body of a *sāmbhar*.² Whether the implements represented in these paintings were of copper or bone or even wood and stone combined (wooden shaft with microlithic barbs) cannot be precisely determined, but whatever the raw material, the fundamental conception is indeed the same. It is therefore not unlikely that the copper harpoons of the Gangetic basin may have had some relationship with those portrayed in the Central Indian paintings.

(vi) *Antennae swords*.—The distinctive feature of these swords is the hilt which bifurcates like the antenna of an insect (cf. fig. 7). Outside the Gangetic basin, Kallūr (Hyderabad State) is the only place in India which has yielded swords of this type.³ There too, the associated pottery and other finds are not known. Beyond the frontiers of India, a bronze sword belonging to the Koban culture of north Caucasia may be cited.⁴ But there are some outstanding differences between the Caucasian and Indian specimens. In the former case, the hilt and blade are two separate parts, joined subsequently. Further, the hilt has a hole and the blade is flat-sectioned. In the latter case, on the other hand, the hilt and blade are of one cast, there is no hole in the hilt and the blade has a strong medial ridge. Besides, there are only a few examples of this type in the Koban culture itself. Thus, there may not be much justification in tracing the origin of the one from the other, specially in the absence of any examples from the intervening countries like Iran, Afghanistan and Pakistan. In fact, much more evidence is wanted than is available at present to decide the issue either way.

(vii) *Anthropomorphic figures*.—They seem to be confined to the Gangetic basin alone, since, as far as the author is aware, their occurrence has not been reported from anywhere else in the world.

From the above it will be seen that there exist no good parallels to these 'copper hoards' in either the Indus valley cultures or any of the protohistoric cultures of western Asia. If that is true, as it seems to be, how is it that Professors Piggott and Heine-Geldern have been led to think otherwise? The reason is not far to seek. It lies in the mixing up of issues. The two writers have assumed that the well-known sword from Fort Munro in the Panjab, the trunion celt from Shalozan in the Kurram valley, socketed axes from Shāhi Tump and Chanhu-daro and the adze-axe from Mohenjodaro (cf. fig. 8) also belong to these 'hoards' and can be treated

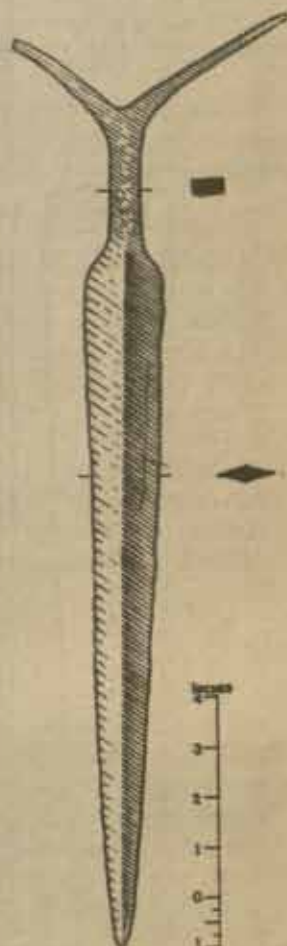


FIG. 7. *Antennae sword of copper from Fatehgarh*

¹ J. Cockburn, 'On the recent existence of *Rhinoceros Indicus*', *Journ. Asiatic Soc. Bengal*, LII, pt. II (1883), pp. 56-64, pl. VII.

² J. Cockburn, 'Cave drawing in the Kaimūr Range, North-West Provinces', *Journ. Roy. Asiatic Soc.*, 1899, pp. 89-97, fig. 3.

³ *An. Rep. Arch. Dept. H.E.H. Nizam's Dominions*, 1937-40, pl. V.

⁴ *Materialy po Arkheologii Kavkaza*, VIII (1900), pl. X.

as such. In point of fact this is not true. None of the four types just stated occurs in the Ganges basin and, conversely, no harpoon, anthropomorphic figure or antennae sword etc. occurs west of that basin. Not a single site can be named where an implement from the former group has been found in association with an implement from the latter (cf. map, fig. 1). If this is realized, things get straightened at once.

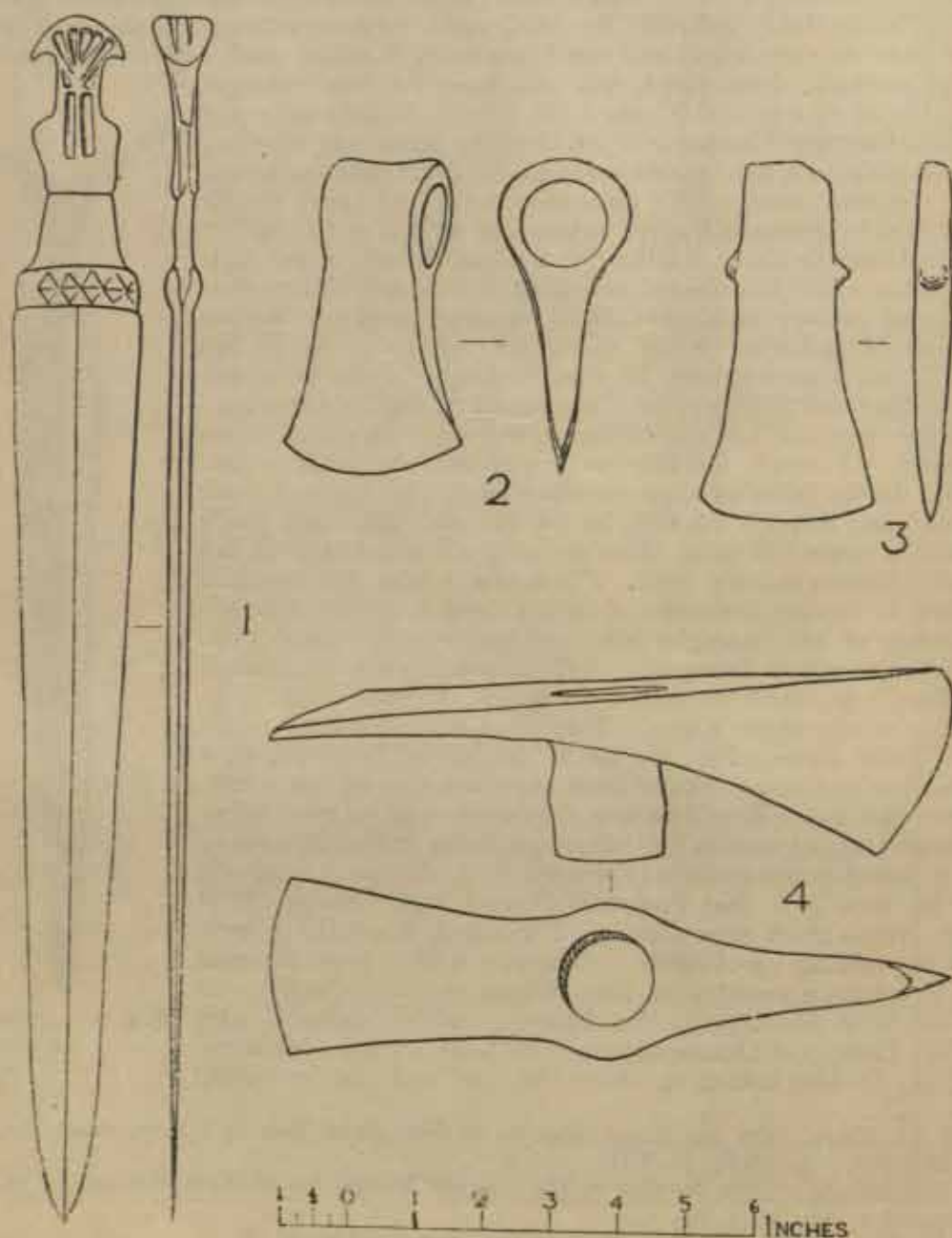


FIG. 8. 1, Sword from Fort Munro; 2, shaft-hole axe from Shāhi Tump; 3, trunion celt from Shalozan; 4, shaft-hole adze-axe from Mohenjo-daro

Here it would not be out of place to recall that almost all the implements comprising the 'hoards' are of pure copper. The specimens from Bithūr, Fatehgarh, Mainpuri, Gungeriā, Bisaulī etc. have amply testified to this.¹ The socketed axe, adze-axe, trunion celt, Fort Munro sword and their associated implements, on the other hand, are mostly of bronze. Again, the socket is entirely absent from the Gangetic celts. From the technological point of view also, therefore, the two groups fall out from each other.

Thus, while the socketed axe, adze-axe, trunion celt and Fort Munro sword etc., with their demonstrable West Asiatic affinities, are likely to have been associated with the upheaval and movement of people that followed the break-up of the Harappā culture, the 'copper hoards', on the contrary, seem to point to a culture which was mainly confined to the Gangetic basin with a possible southward extension across the Vindhya and Kaimūr ranges.

Who were then the authors of this 'copper hoard culture'? As stated above (p. 27), a trial excavation very close to the find-spot of the Bisaulī hoard produced rolled fragments of an ill-fired, thick, ochre-washed ware which may have been associated with the implements.

Another copper-hoard site, Rājpur Parsu, was explored by the writer in October, 1949, to see if it could throw any light on the subject. An octogenarian, who claims to have shown Vincent Smith the find-spot nearly fifty years ago, took the writer also to the place. It is a mango-garden on the north-eastern periphery of a mound which is about 5-7 ft. high and covers an area nearly 4 square furlongs. Five small trenches were laid out, one in the mango-garden and four at various points on the mound. Though very little deposits were met with in the garden itself, occupational strata went to a depth of nearly 8 ft. in the mound. No copper implements were obtained, but the lower levels produced the same kind of ill-fired, thick, ochre-washed, rolled pottery as was found at Bisaulī. This coincidence naturally makes one repeat the question—are the copper implements and the pottery products of the same culture? If the answer be in the affirmative (which only further work at these sites can finally decide), it may perhaps be possible to identify the authors one-day.

4. ACKNOWLEDGEMENTS

The author's grateful thanks are due to Shri B. M. Vyas and Shri S. C. Kala of the Municipal Museum, Allahabad, Shri Rai Krishna Das, Shri U. S. Sastri and Shri Vijayakrishna of the Bhārat Kalā Bhavan, Banaras, Shri M. M. Nagar of the State Museum, Lucknow, Shri S. A. Shere of the Patna Museum, Patna, and Shri C. Sivaramamurti and Shri D. P. Ghosh respectively of the Indian and Ashutosh Museums, Calcutta, for the facilities afforded by them in connection with the study of the copper and stone implements lodged in their respective museums. He is indebted to Dr. B. B. Lal, Archaeological Chemist in India, Dehra Dun, for the chemical analysis of the anthropomorphic figure from Bisaulī. He would be failing in his duty if he did not thank Shri B. K. Thapar for his assistance during the explorations at Bisaulī and Rājpur Parsu, Shri K. K. Sinha for lending a hand in the preparation of the Table (p. 38A) and Shri L. Dutt, Shri S. K. Neogi, Shri S. P. Jain, Shri S. Ghosh, Shri K. C. Das and Shri R. Chatterji for preparing the line-drawings, map and photographs etc.

¹ Cf. Smith, *op. cit.* (1905), and the report of the Archaeological Chemist on the Bisaulī specimens, above p. 24.

POSTSCRIPT

Since some delay has been caused in the publication of this article, an opportunity is taken here to refer to the excavations at Hastināpura near Meerut (west Uttar Pradesh), carried out by the author during 1950-51 and 1951-52. The lowest levels of this site also yielded an ill-fired, thick, ochre-washed pottery. Since the sherds are very fragmentary and limited in number, it is difficult to ascertain the complete shapes of the pots. However, the fabric, wash and general look of the specimens from the three sites, viz. Bisauli, Rājpur Parsu (above, p.p. 27, 37) and Hastināpura suggest that they might belong to one and the same class.¹ At Hastināpura the strata overlying this pottery contained Painted Grey Ware, which appears to have been associated with the Aryans when they occupied the upper basins of the Sutlej, Sarasvatī, Yamunā and Gangā round about 1000 B.C.²

Thus, if the copper hoards are to be associated with the ill-fired, ochre-washed, thick ware, it would follow that they are the products of a people who inhabited the Gangetic basin, presumably before the arrival of the Aryans. Who exactly these pre- and non-Aryans were it is very difficult to determine in the present state of our knowledge, but it may not be out of place to recall here two typological observations made previously (p. 32, 35). First, the bar-celt, which constitutes an important type among the copper-hoards, seems to have developed from stone celts of a similar shape occurring in the hilly tracts of north-eastern Madhya Pradesh, southern Bihar, western West Bengal and northern Orissa. Secondly, the harpoon, another outstanding type in the copper hoards, has a resemblance to certain tools depicted in the cave-paintings of Mirzāpur in southern Uttar Pradesh. If these similarities have any significance, it would appear that the authors of the copper hoards were once associated with the areas just stated. At

¹ Of course more material is necessary to establish the similarity fully.

² The evidence suggesting the association of the Painted Grey Ware with the Aryans is mainly of a circumstantial kind, and until positive ethnological and linguistic proof is obtained, the equation must be regarded only as provisional. See, in this connexion, the author's paper, 'The Painted Grey Ware of the upper Gangetic basin: an approach to the problems of the Dark Age' *Journ. Roy. Asiatic Soc. Bengal (Letters)*, N.S., XVI (1950), pp. 89 ff., reviewed by S. Piggott in *Antiquity*, 99 (Sept. 1951), p. 166.

The report on the excavations at Hastināpura, 1950-51 and 1951-52, will be published in an early number of *Ancient India*. Meanwhile, a short note has appeared in the *Illustrated London News*, Oct. 4, 1952. Unfortunately, however, no mention of the 'ochre-washed' ware has been made in that note. Circumstances leading to this omission may perhaps be briefly stated here.

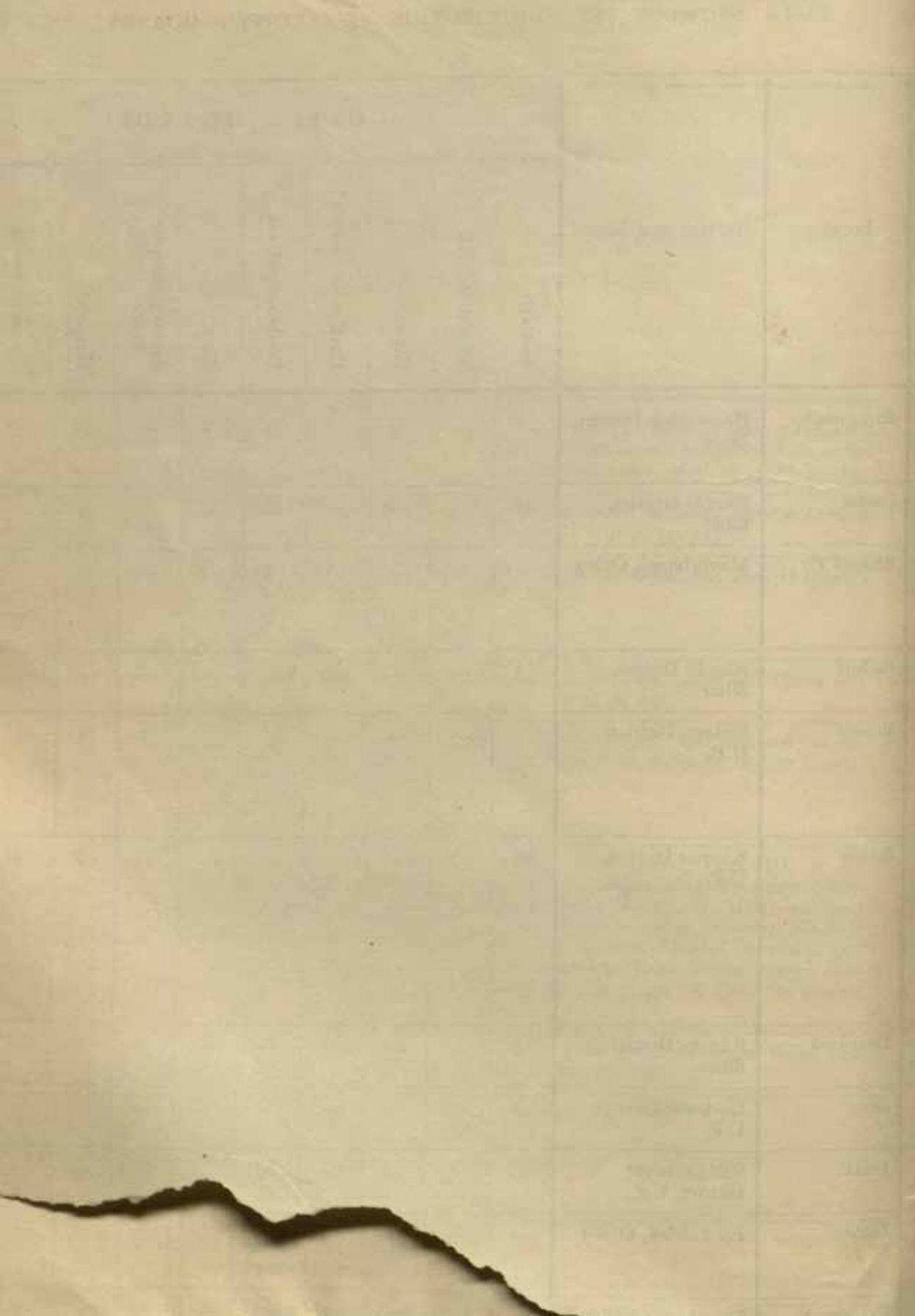
The first season's work at Hastināpura came to a close at the end of March 1951, and on April 10, 1951, the writer had to leave India for further studies abroad. He had, therefore, hardly any time to look into the pottery that was recovered during the last few days of the excavation from the levels immediately overlying the natural soil. He carried with him the impression that the Painted Grey Ware was the earliest ceramic industry of the site and accordingly submitted the note to the *Illustrated London News* about October 1951.

After his return to India in November 1951, the author resumed work at Hastināpura. This time a much wider area was dug in the lowest levels and it was observed that between the natural soil and the Painted Grey Ware strata there was a deposit, varying from $\frac{1}{4}$ to 1 foot in thickness and at places even entirely absent having been cut away by subsequent pits, which contained a different class of pottery, viz. the ochre-washed ware. On an examination of the pottery from comparable levels of 1950-51 excavations it was found that there did exist a few sherds of this ware in that collection. Owing to lack of time prior to his departure abroad, the author could not look into these sherds, for which act of negligence he tenders his apologies.

TABLE SHOWING THE DISTRIBUTION OF 'COPPER HOARDS' AND OTHER BRONZE AND COPPER IMPLEMENTS OF PROTOHISTORIC INDIA

No.	Locality	District and State	'COPPER HOARDS'										OTHERS				Museums where lodged	References
			Flat celt	Shouldered celt	Bar-celt	Hatchet or 'parula'	Double-edged axe	Ring	Anthropomorphic figure	Harpoon	Antennae sword	Hooked sword or spear-head (?)	Fort Munro sword	Trunion celt	Shaft-hole axe	Asc-adze		
1	Buzagundā	Hazāribāgh District, Bihar	1	...	...	...	...	1	...	...	...	...	...	...	...	...	Madras Government Museum, Madras	R. Bruce Foote, <i>The Foote Collection of Indian Pre-historic and Protohistoric Antiquities: Notes on their Ages and Distribution</i> (Madras, 1916), p. 164.
2	Bartol	Rānchi District, Bihar	21	...	...	...	...	...	...	...	...	...	...	...	...	...	Patna Museum, Patna	J. Coggin Brown in <i>Journ. Bihar and Orissa Res. Soc.</i> , I (1915), pp. 127-28.
3	Bhagrā Pīr	Mayūrbhanj, Orissa	...	...	...	...	3	...	...	...	...	...	...	...	...	...	One each in the State Museum, Lucknow; Bāripadā Museum, Orissa; and Patna Museum, Patna	<i>Journ. Bihar and Orissa Res. Soc.</i> , II (1916), pp. 386-87.
4	Bichnā	Rānchi District, Bihar	1	...	...	...	...	...	...	...	...	...	...	...	...	...	Patna Museum, Patna	S. C. Roy in <i>Journ. Bihar and Orissa Res. Soc.</i> , I (1915), p. 242.
5	Bisaulī	Badaun District, U.P.	1	...	...	...	...	...	3	1	...	...	...	...	...	...	One anthropomorphic figure in the Municipal Museum, Allahabad; the rest in Bhārat Kalā Bhavan, Banaras	The present paper; also referred to by Stuart Piggott in <i>Antiquity</i> , no. 72 (1944), p. 182.
6	Bishūr	Kanpur District, U.P.	26	7	...	...	...	...	...	7	1	...	...	...	...	...	Indian Museum, Calcutta; State Museum, Lucknow; Municipal Museum, Allahabad; and local temples	<i>As. Res.</i> , XIV (1822), App. III, p. 3; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> , II (1883), p. 395; Vincent Smith in <i>Indian Antiquary</i> , XXXIV (1905), p. 232 and XXXVI (1907), p. 53; H. N. Shastri in <i>Journ. As. Soc. Bengal, New Series</i> , XI (1915), pp. 1-6; and the present paper.
7	Dargāmā	Rānchi District, Bihar	5	...	...	...	...	...	...	...	...	...	...	...	...	...	Patna Museum, Patna	S. C. Roy in <i>Journ. Bihar and Orissa Res. Soc.</i> , I (1915), p. 239.
8	Deotī	Lucknow District, U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	State Museum, Lucknow	The present paper.
9	Dhākā	Shāhjahanpur District, U.P.	...	5	...	...	...	...	...	...	...	...	...	...	...	...	" " "	" " "
10	Dumriā	Pāl Lahārā, Orissa	...	1	...	...	...	...	...	...	...	...	...	...	...	...	State Museum, Lucknow (transferred from the Patna Museum)	" " "
11	Fachgarh	Farrukhābād District, U.P.	...	...	...	...	...	...	1	...	13	1	...	...	...	...	Indian Museum, Calcutta; National Museum of Antiquities, Edinburgh	<i>As. Res.</i> , VII (1832), p. 624; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> , (Calcutta, 1883), II, pp. 405-08; V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), pp. 232 ff.
12	Gungeriā	Bālkghāt District, M.P.	Seve- ral	Seve- ral	Seve- ral	...	...	...	...	...	...	...	...	...	...	...	Indian Museum, Calcutta; British Museum, London; National Museum, Dublin; National Museum of Antiquities, Edinburgh	<i>Proc. As. Soc. Bengal</i> , 1870, p. 131, pl. II; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> , (Calcutta, 1883), II, pp. 414-25; Read, <i>Guide to Antiquities of the Bronze Age</i> , British Museum (1920), pp. 182-83; V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), pp. 233 ff.
13	Hāml	Pālāmau District, Bihar	6	...	17	...	...	...	...	...	...	...	...	...	...	...	Patna Museum, Patna	S. C. Roy in <i>Journ. Bihar and Orissa Research Soc.</i> , II (1916), pp. 482-83.
14	Hardī	Siāpur District, U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	State Museum, Lucknow	The present paper.
15	Indilāpur	Shāhjahanpur District, U.P.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	" " "	" " "
16	Kaushaya	Monghyr District, Bihar	...	1	...	...	...	...	...	...	...	...	...	...	...	...	Indian Museum, Calcutta	G. N. Mukherji in <i>Indian Historical Quarterly</i> , XI (1935), pp. 317 ff.
17	Kosam	Allahabad District, U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	British Museum, London	V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), p. 232.
18	Kamalpur	Hardoi District, U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	State Museum, Lucknow	H. N. Shastri in <i>Journ. Asiatic Soc. Bengal, New Series</i> , XI (1915), p. 4.
19	Kallūr	Raichūr District, Hyderabad	2	...	...	...	...	...	...	...	3	...	...	...	...	...	Hyderabad Museum, Hyderabad	<i>An. Rep. Arch. Dept. of H.E.H. the Nizam's Dominions for 1937-40</i> (Calcutta, 1942), pp. 22-24, pls. V and XII.
20	Mānpur	Bulandshahar District, U.P.	1	1	...	...	...	...	...	...	...	1 (hook not clear)	...	...	...	...	State Museum, Lucknow	H. N. Shastri in <i>Journ. As. Soc. Bengal, New Series</i> , XI (1915), p. 4.
21	Mathurā	District H.Q., U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...		Cunningham <i>Arch. Surv. Reports</i> , III, p. 16, pl. II.
22	Mainpuri	District H.Q., U.P.	2	...	...	...	...	6	...	...	...	...	...	...	...	...	Indian Museum, Calcutta	<i>Proc. As. Soc. Bengal</i> , 1868, pp. 251, 262; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> (Calcutta, 1883), II, 403.
23	Majhadpur	Hardoi District, U.P.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	State Museum, Lucknow	The present paper.
24	Niorai	Etawah District, U.P.	...	...	...	...	...	...	...	1	...	1	...	...	...	...	Royal Society of N. Anti- quaries, Copenhagen	<i>Proc. Soc. Ant. Scotland</i> , 1870, pp. 293, 300; <i>ibid.</i> , pp. 690, 694 referring to <i>Report of Roy. Soc. N. Antiquaries</i> , Copenhagen, 1838-39; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> (Calcutta, 1883), II, p. 396; Read, <i>Guide to Antiquities of the Bronze Age</i> (British Museum, 1920), pp. 183-84.
25	Parīar	Unao District, U.P.	1	1	...	...	...	...	...	Seve- ral	...	...	...	...	...	...	Used to be in a local temple	Führer, <i>Monuments and Antiquities of N. W. Provinces and Oudh</i> (Allahabad, 1891), pp. 168 and 172; V. Smith in <i>Indian Antiquary</i> , XXXVI (1907), p. 53, pl. VII.
26	Pondī	Rewā District, Vindhya Pradesh	5	...	...	...	...	47	...	...	...	...	...	...	...	...	Municipal Museum, Allahabad; Office of the Superintendent of Archaeology, Vindhya Pradesh, Rewā	The present paper.
27	Rājpur Patna	Bijnor District, U.P.	9	...	1	...	...	...	...	6	...	...	...	...	...	...	State Museum, Lucknow	V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), pp. 231 and 234.
28	Sagunā	Pālāmau District, Bihar	1	...	...	...	...	...	...	...	...	...	...	...	...	...		J. Coggin-Brown in <i>Journ. Bihar and Orissa Res. Soc.</i> , I (1915), pp. 125-26.

29	Sheorājpur	Kanpur District, U.P.	...	...	...	...	...	...	3	...	...	...	...	...	...	State Museum, Lucknow	The present paper.
30	Sarhauī	Shāhjahānpur District, U.P.	...	...	...	1	...	...	...	1	...	5	...	...	...	" " "	" " "
31	Tamājuri	Midnapore District, West Bengal	...	1	...	...	...	...	...	...	...	...	...	...	...	Indian Museum, Calcutta	Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> (Calcutta, 1883), II, pp. 485-86; V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), p. 232.
32	Indefinite	Hardoi District, U.P.	...	...	...	...	...	...	...	1	...	...	...	...	...		H. N. Shastri in <i>Journ. As. Soc. Bengal</i> , New Series, XI (1915), p. 5.
33	Indefinite	Hazāribāgh District, Bihar	3	...	...	...	...	...	...	...	...	...	...	...	...	Indian Museum, Calcutta	<i>Proc. Asiatic Soc. Bengal</i> , 1871, p. 231; Anderson, <i>Catalogue of Archaeological Collections in Indian Museum</i> (Calcutta, 1883), II, pp. 392-95.
34	Various	Mānbhūm District, Bihar	27	...	...	...	...	...	...	...	...	...	...	...	...		A. Campbell in <i>Journ. Bihar and Orissa Res. Soc.</i> , II (1916), pp. 85-86.
1	Chanhu-daro	Nawābshāh District, Sind (Pakistan)	Several	...	...	...	...	...	...	...	...	...	...	...	1		E. J. H. Mackay, <i>Chanhu-daro Excavations</i> (New Haven, 1943), pls. LXII ff.
2	Harappā	Montgomery District, Panjab (Pakistan)	Several	...	...	...	...	...	...	...	...	...	...	...	...	Museums in India and Pakistan	M. S. Vats, <i>Excavations at Harappā</i> (Delhi, 1940), II, pls. CXXI ff.
3	Jorwe	Nāsik District, Bombay	4	...	...	...	...	...	...	...	...	...	...	...	...	Deccan College Post-Graduate and Research Institute, Poona	H. D. Sankalia, "Ancient and Prehistoric Maharashtra" in <i>Journ. Bombay Br. Roy. As. Soc.</i> , XXVII, pl. VIII (b).
4	Mohenjo-daro	Larkānā District, Sind (Pakistan)	Several	...	...	...	...	...	...	...	...	...	...	...	1	Museums in India and Pakistan	J. Marshall, <i>Mohenjo-daro and the Indus Civilization</i> (London, 1931), III, pl. CXXXVIII ff.; E. J. H. Mackay, <i>Further Excavations at Mohenjo-daro</i> (Delhi, 1937), II, pls. CXIII ff.
5	Nāl	Kalāt State, Baluchistan (Pakistan)	Several	...	...	...	...	...	...	...	...	...	...	...	...	" " "	H. Hargreaves, 'Excavations in Baluchistan' etc., <i>Mem. Arch. Surv. Ind.</i> , no. 35 (Calcutta, 1929), pl. XIV.
6	Fort Munro	Panjab (Pakistan)	...	...	...	...	...	...	...	...	...	...	1	...	...	National Museum of Antiquities, Edinburgh	V. Smith in <i>Indian Antiquary</i> , XXXIV (1905), p. 243.
7	Shāhī Tump	South Baluchistan (Pakistan)	...	...	...	...	...	...	...	...	...	...	...	1	...	Central Asian Antiquities Museum, New Delhi	A. Stein, 'An Archaeological Tour in Gedrosia' <i>Mem. Arch. Surv. Ind.</i> , no. 43 (Calcutta, 1931), pl. XIII.
8	Shalozan	Kurram Agency, N.W.F.P. (Pakistan)	...	...	...	...	...	...	...	...	...	...	...	1	...	Peshawar Museum	J. Coggin-Brown in <i>An. Rep. Arch. Surv. Ind.</i> 1913-14, p. 247, pl. LXVIIc.



present these tracts are known to be chiefly occupied by the Mundas, Santhals and other tribes belonging to the Proto-Australoid group of the Indian population. Can it then be said that the ancestors of these Proto-Australoid tribes were responsible for the copper hoards? The archaeological evidence available at present is indeed too meagre to answer the question, but literary evidence may be of some interest here. The Vedic Aryans, on reaching the plains of northern India, encountered certain aboriginal tribes whom they called the *Nishādas* and described them as having a dark complexion, short stature and flat nose (*anās*).¹ Since more or less the same physical features characterize the Proto-Australoid tribes, the question posed above would appear to gain support from the Vedic literature itself. But looking to the cultural equipment of these tribes at the present day one wonders if their ancestors were capable of producing the highly-evolved implements some 3000 years ago. Such an objection, however, is subjective rather than objective and may lose its force when it is recalled that the mighty cities of Harappā and Mohenjo-daro were never reproduced by the cultural heirs of that civilization.

The author does not claim to have solved the problem. In fact he has made it more complicated than it was hitherto believed to be by raising an altogether fresh issue. Let it be left to the spade now to give the final verdict.

¹ Macdonell and Keith, *Vedic Index* (London, 1912), I, pp. 453-54; R. Chanda, *The Indo-Aryan Races* (Rajashahi, 1916), I, pp. 4-11. These references would make it clear that the *Nishādas* were 'too powerful to be enslaved or expelled *en masse*. The Aryans were compelled to meet them half way.'